TECHNOLOGY DEPT

Gas Journal

Vol. 274. 105th Year. LONDON, APRIL 1, 1953. No. 4687. Price 1/3
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MATERIALS HANDLING PLANT

for the Gas Industry

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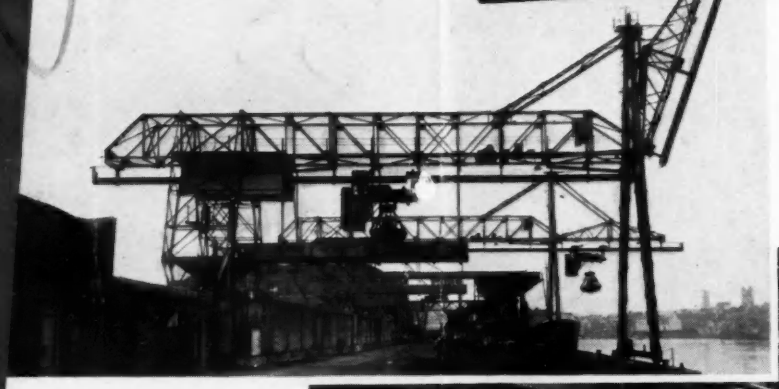

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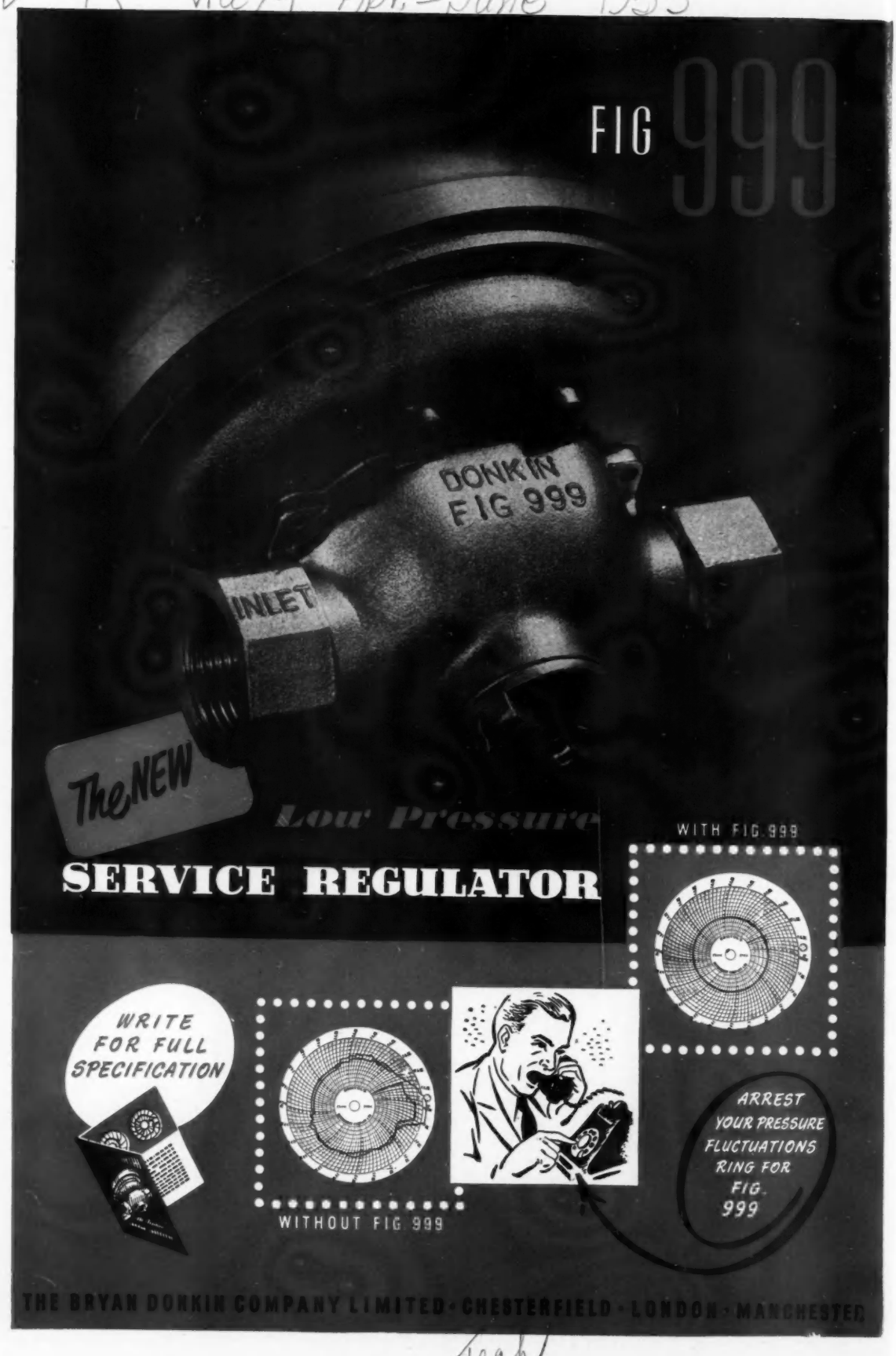

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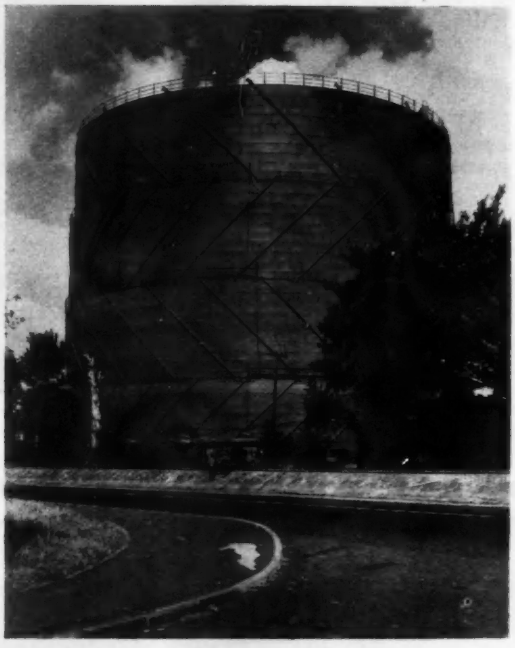

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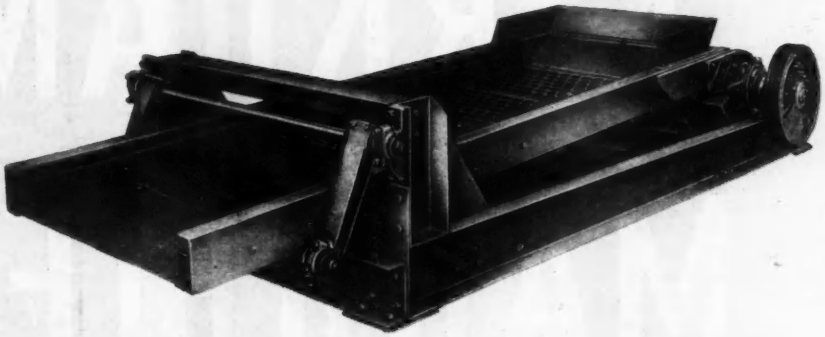

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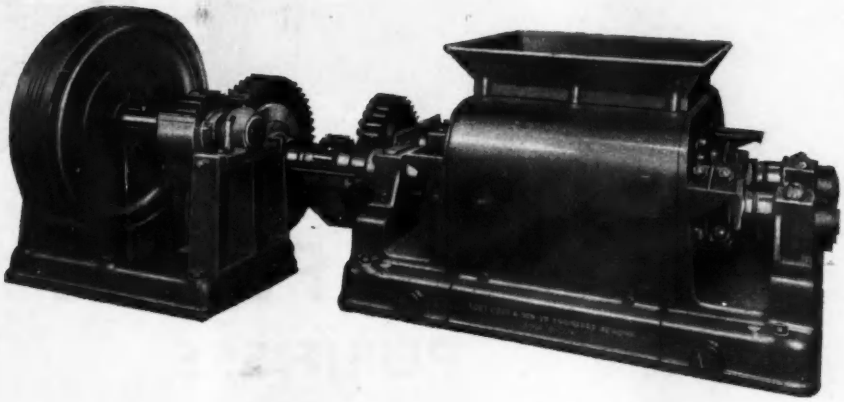

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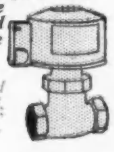

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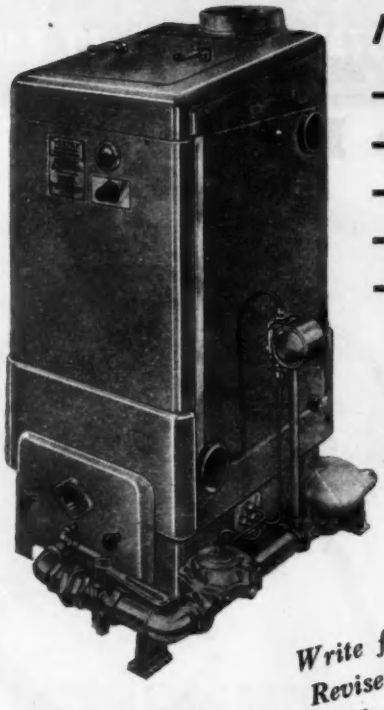

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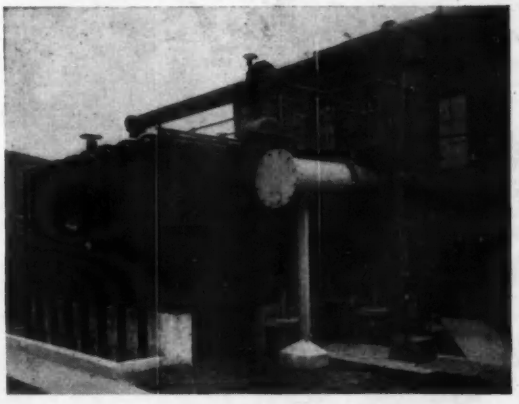

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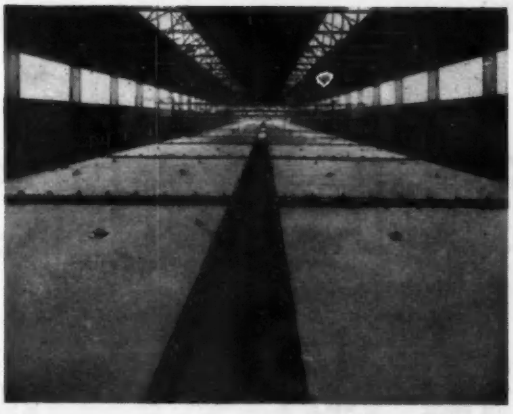
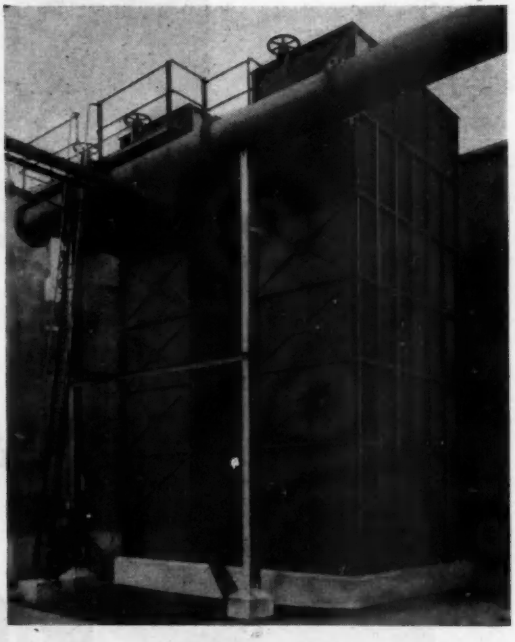


Internal deck level view of the Purifier Installation (Eight 45 Feet Square Boxes)



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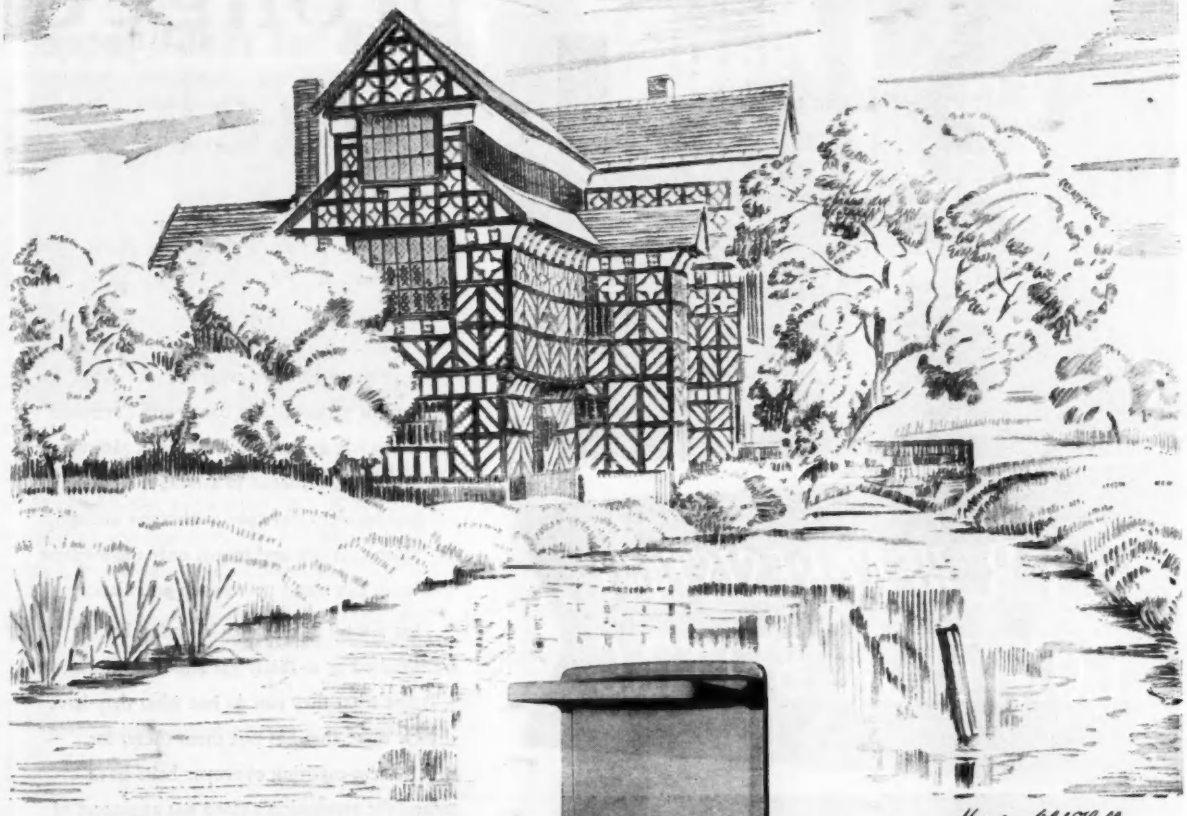

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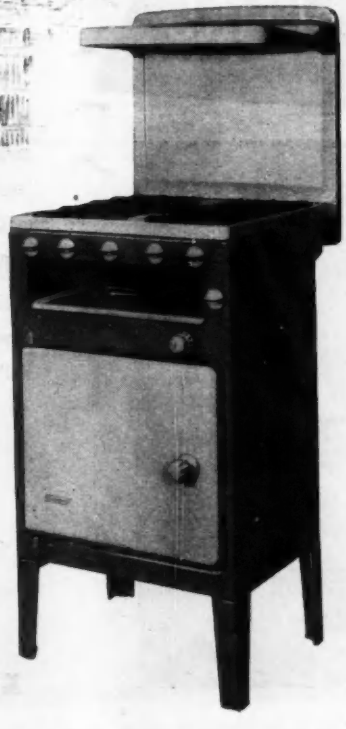

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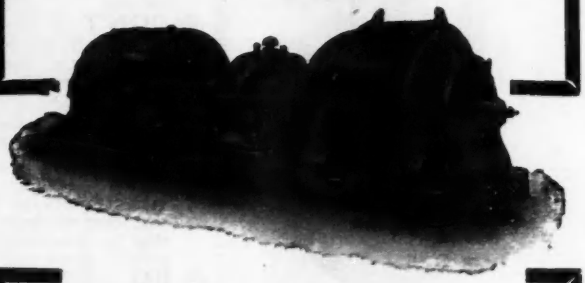

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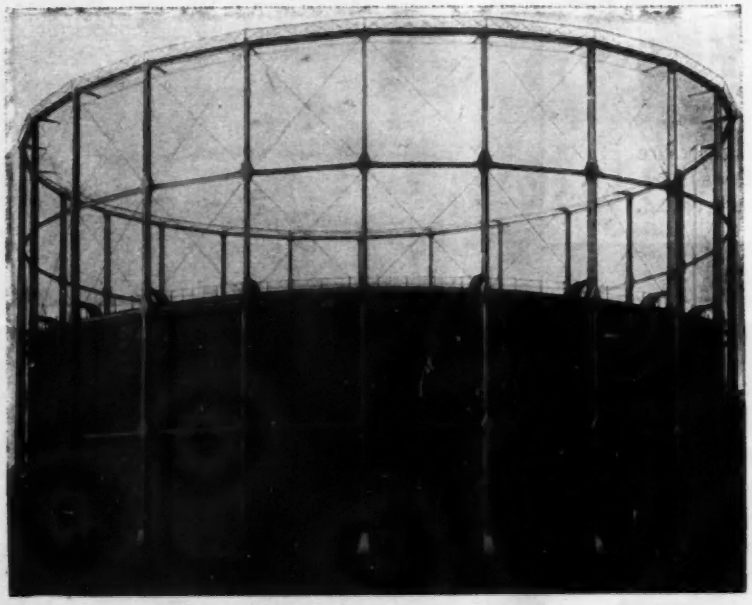

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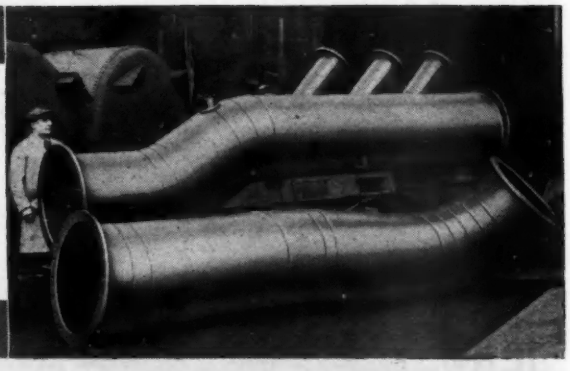

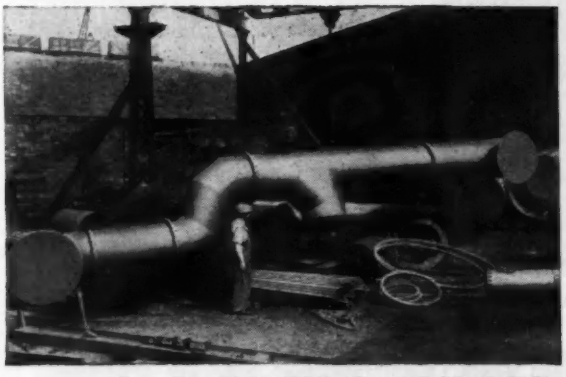

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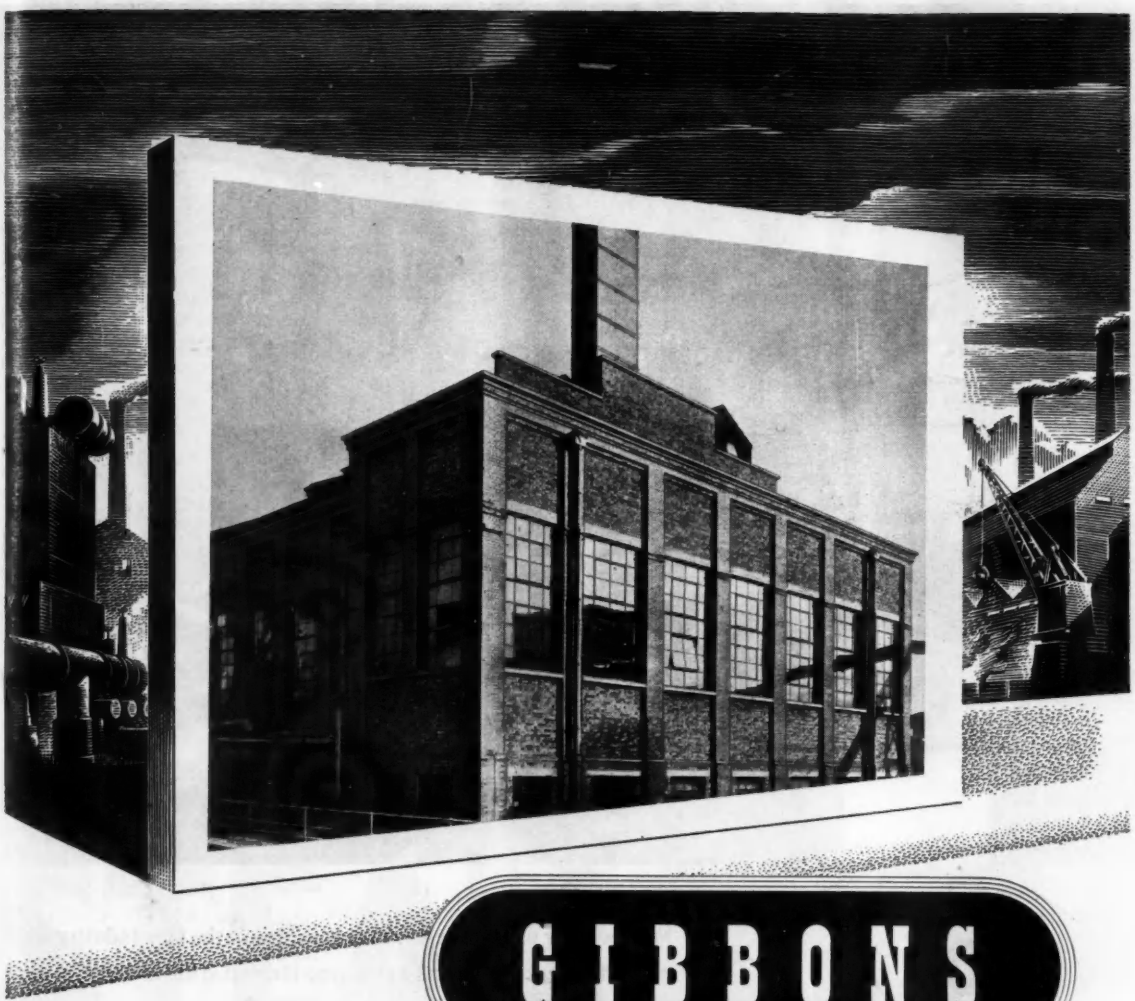

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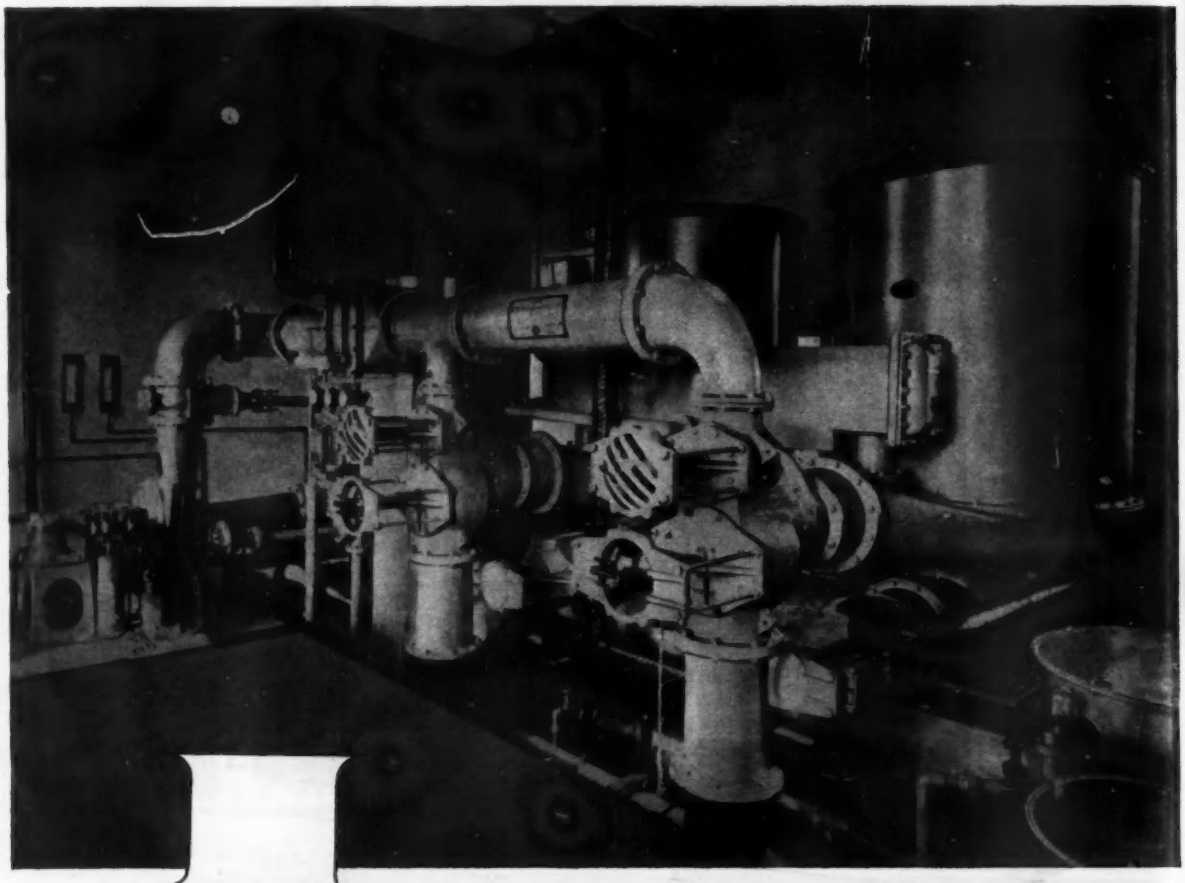

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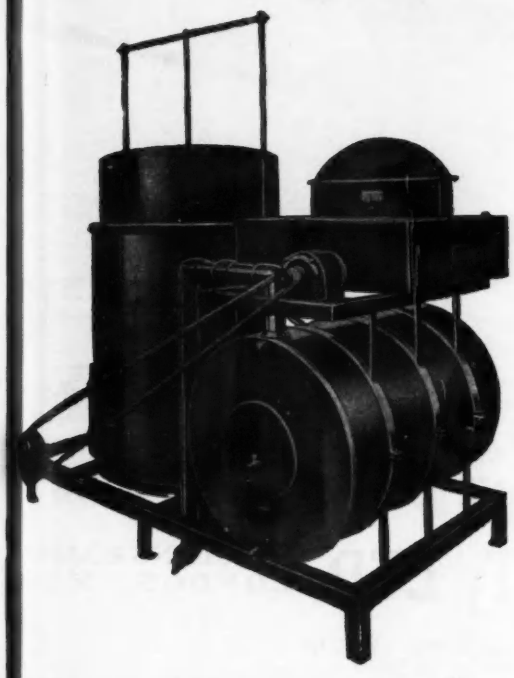

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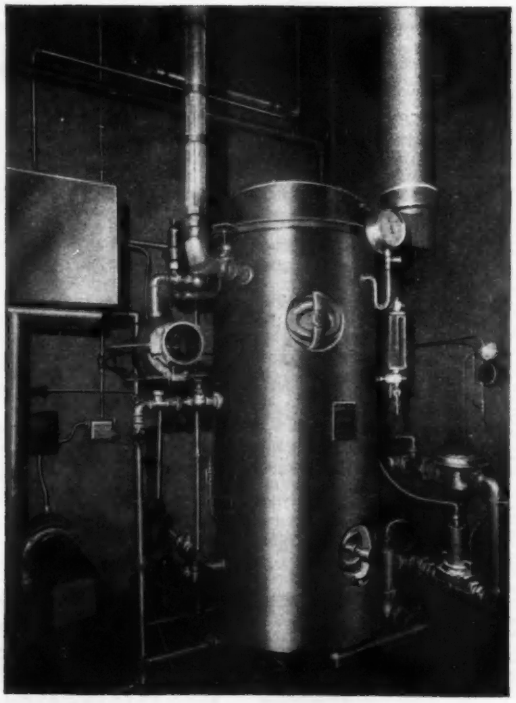

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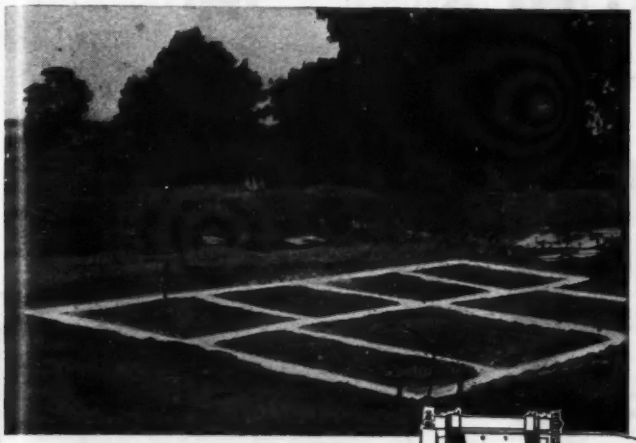

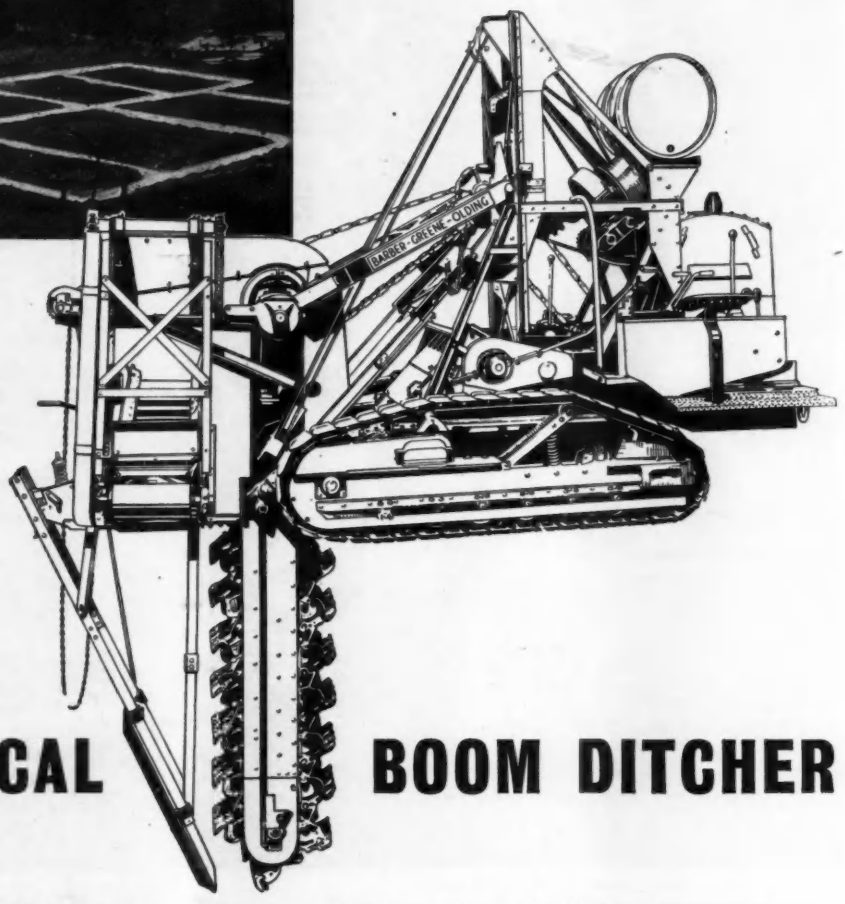

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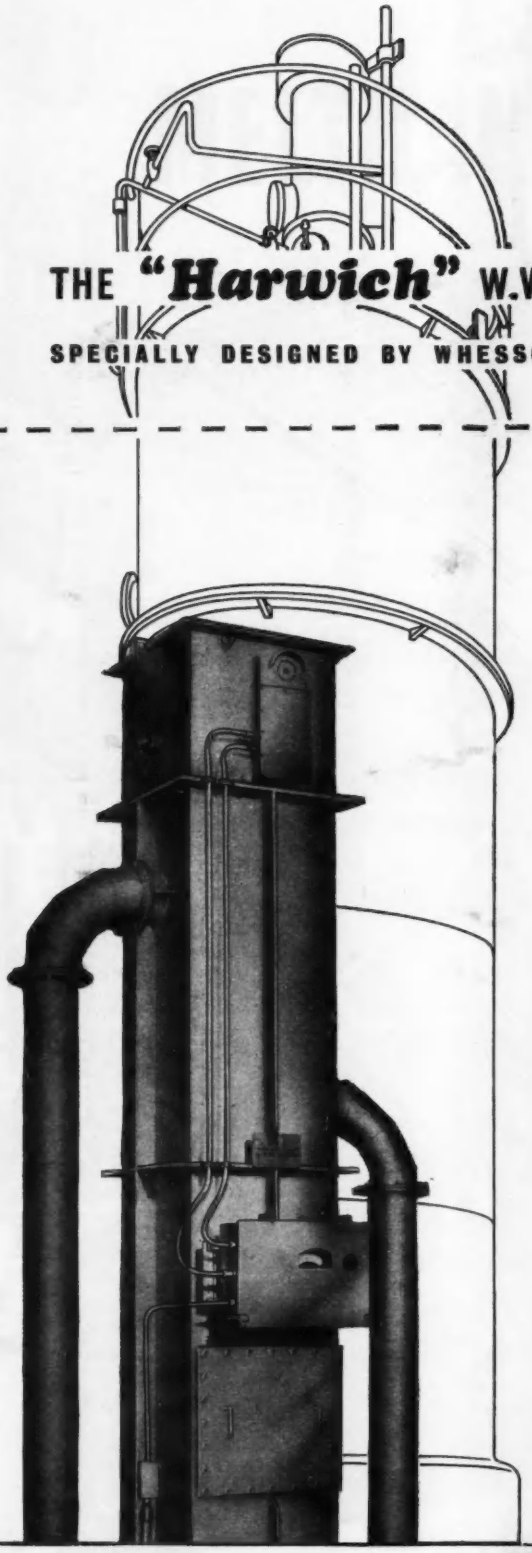

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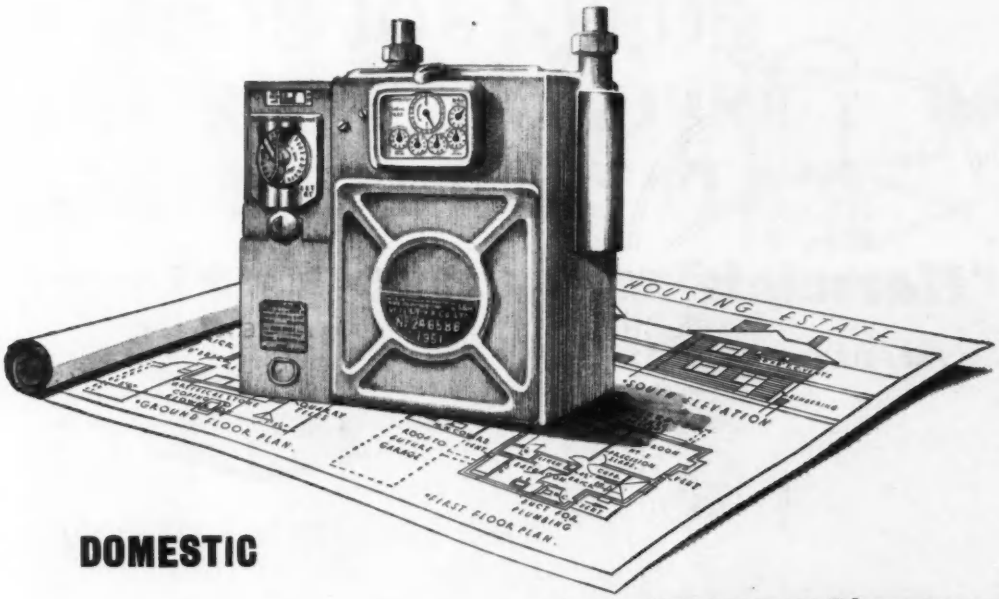

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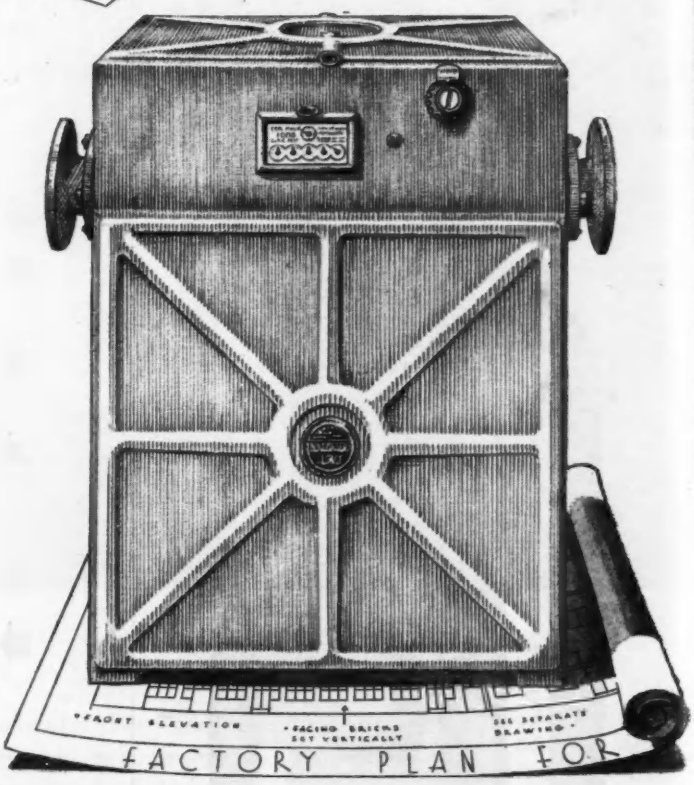

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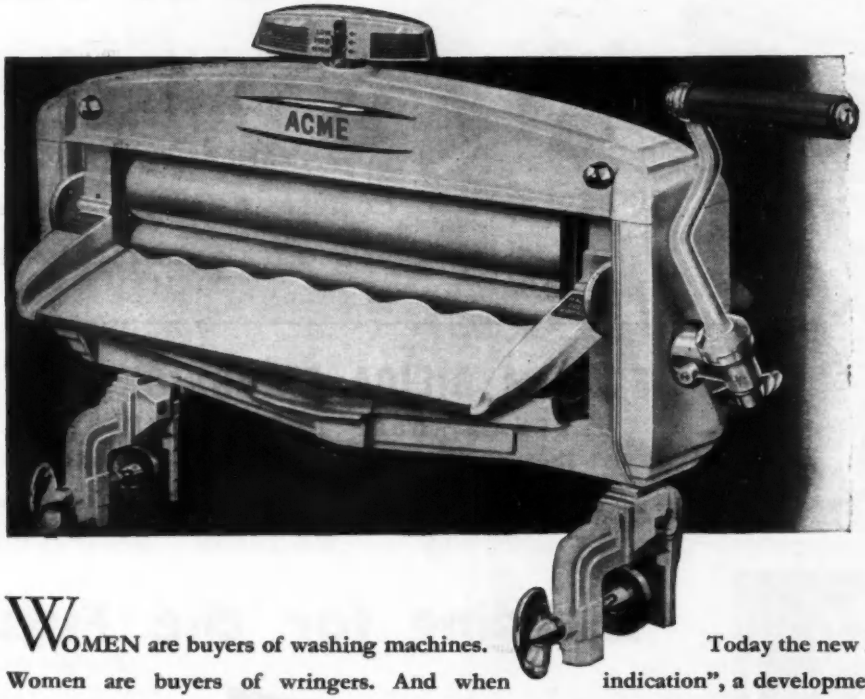

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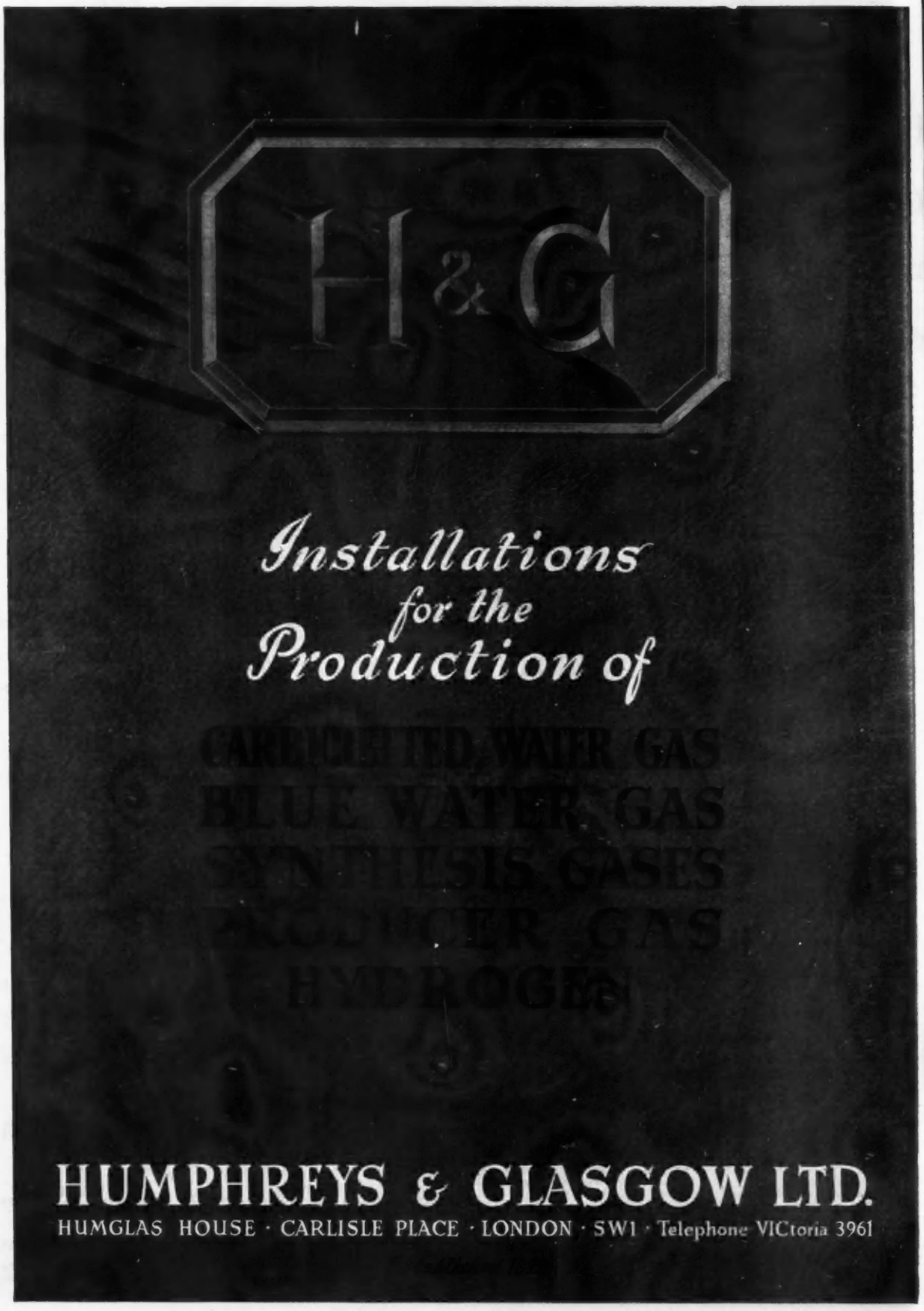
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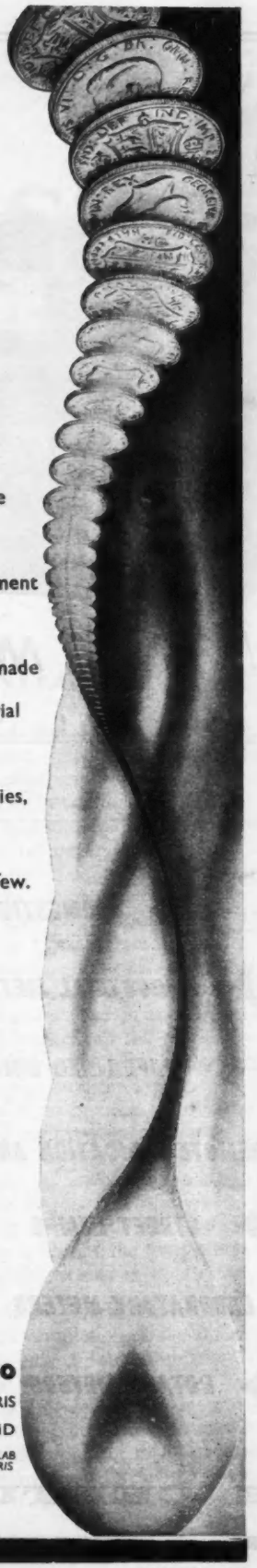

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VOL. 274. NO. 4687 105TH YEAR APRIL 1, 1953

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Her Majesty Queen Mary

INTEGRATION AND DEVELOPMENT

IT was purely accidental that Mr. C. H. Chester had another engagement which prevented his attendance at the Cheltenham meeting of the South Western Section of the Institution of Gas Engineers to hear Mr. T. W. Jackson, the Taunton Sub-Divisional Manager, present his paper on the technical aspects of integration and the scope for development, particularly in the southern division of the South Western area. The Chairman of the Board was, in fact, explaining to the Gas Consultative Council at Taunton how, despite increases in salaries and in coal and transport costs, the Board had averted—at all events for the time being—a further increase in the price of gas. In brief, Mr. Chester was giving the representatives of the consumers an indication of the effects of economies, improved efficiencies, and the amalgamation of small undertakings which, if no increase in costs outside the Board's control had occurred since vesting day, would have enabled it actually to reduce its charges all round. Mr. Jackson, with an exclusively technical audience, was showing how the southern division is steadily but surely advancing towards the ultimate ideal of a grid served by less than a fifth of the total number of manufacturing stations which existed in 1949.

The third annual report of the South Western Board stated that with the eventual completion of the Board's long-term integration plans only a limited number of major works will remain in being, some as base load manufacturing stations, thus increasing the life of the refractory materials and reducing costs in a number of directions. In the northern division, out of 31 gas producing units existing on vesting day it is envisaged that only the six major units at Bristol, Bath, Swindon, Weston-super-Mare, Gloucester, and Cheltenham will remain, while in the southern division the 74 gas producing units existing in May, 1949, will be replaced by approximately 14. A clearer impression of what this means in the southern division will be gathered from the map which we reproduce from Mr. Jackson's paper on p. 40. This scheme will entail the ultimate provision of more than 500 miles of high pressure main and will be spread over a number of years, priority being given to those projects which will show immediate economic and practical advantages.

The opportunity for extensive development of supplies coincides unfortunately with a period of rising costs, and mainlaying in the south west, and especially in rocky districts like Cornwall, is a costly business, as costly as, if not more costly than, in any other area in the country. But, as Mr. J. W. Denton remarked, mainlaying has never been cheap, and we must not overlook the fact that the overall relation between expenditure and income today may not be very different from what it was several years ago. Integration must be planned not only for the immediate future but for posterity. Twenty years may be the maximum period over which forecasts can be made because little useful information regarding development beyond that time can be obtained from local authorities or from industries; but the life of cast iron mains is at least three to four times that period, and the designed distribution system must have some degree of flexibility—provided for to some extent by increase of initial pressures.

Mr. Jackson included in his paper a series of very useful graphs dealing with the economic relationship between size of main and initial pressure; cost of trans-

porting coke; relation between net differential cost of gas into holder and capital expenditure on mains; and cost of compression—information of value to all gas engineers dealing with integration schemes. Coming to the peculiar characteristics of the three counties comprising the southern division he showed that while there is only a slight trend to increase in population in the next 20 years the estimated increase in consumers is more than 31%, with a rise in the ratio of consumers to population from 1 in 4.7 to 1 in 3.8. There are more than 200 villages with over 17,000 potential consumers adjacent to the proposed trunk mains. In the light of past experience Mr. Jackson says these connections will not be made without a great effort on the part of the sales personnel, but it has been proved that wherever improvements of supply have been made output has increased, and the whole outlook is promising. Those who are engaged in the development of the whole South Western plan are fortunate in having a Chairman who, in the years immediately before nationalisation, developed around Swindon a prosperous grid which brought within reach of scores of villages on and near the route of the trunk main system a cheap and plentiful supply of gas of constant quality and reasonably good pressure.

A REALISTIC OUTLOOK

THE year reviewed by Dr. Harold Hartley in his address yesterday to the stockholders of Radiation Ltd. may well prove to have been a turning point in the fortunes of that side of the gas industry that remains under private enterprise. The Radiation organisation, now 34 years old, is concerned with the design, development and production of appliances for both the domestic and industrial user, and in common with the rest of the appliance manufacturing industry it has felt the effect of recession, whether it be due to restraint of promotional gas publicity, heavy purchase tax, restricted hire purchase facilities, or just plain reluctance to spend. For the first half of 1952 the gross turnover was only about 1% less than for the first half of the previous year, but the group turnover for the full year was about 7% less than for 1951. The decrease in demand in the second half of the year affected the production of the more expensive appliances; actually the sales of the Low-Cost gas cooker were greater than in the previous year. In terms of trading profit this represented a decrease of £412,932, compared with an increase of £1,424 reported 12 months ago. Towards the end of the year there were signs of an increase in consumer demand, and Dr. Hartley said the demand today is somewhat higher than it has been during the last three months.

The group has increased the price of gas cookers once only since 1947, namely by about 7% in the autumn of 1951. It has striven to absorb the effects of higher wages and costs by improved methods of working, in the hope of holding the position until material prices declined, but the latest rises in cost of coal and steel, coupled with suggestions of dearer gas and electricity, point to the start of another inflationary spiral and 'it may be difficult in future to sell at the favourable prices of the last few years'. New cookers introduced by Radiation have been well received by the gas boards and the public, both because of the physical advantages offered and the intrinsic merit of the designs.

The gas water heater field has been most severely hit by the three circumstances to which we referred earlier in this comment, though the decrease in demand for Radiation products seems to have been less than that suffered by the trade as a whole. In the export world the import restrictions imposed by the Australian, New Zealand, and South African Governments had an adverse effect, but before the end of the year the losses were made good by increased sales in other markets and ultimately there was recorded an overall increase of 5%. It is hoped that the foothold in the new markets will be maintained and that when stability is again attained in the Dominions it will be possible to record a marked and permanent increase in export trade. Much depends on the continued ability of the Dominions and foreign Governments to accept exports from this country. The problems involved require solution by the Governments concerned, and until the channels of trade are free individual manufacturers and exporters and importers will be unable to give of their best.

A year ago Dr. Hartley recorded that during the post-war period there had been a considerable increase both in the scope and scale of the research and development work of the group, and in 1951 the section had benefited from organisational changes introduced during 1950. In his latest review he spoke of the appointment of Mr. W. D. King as Deputy Chairman and Technical Director and anticipated that under his direction the research and development section would function even more effectively than in the past. Radiation has always recognised the crucial importance of research. The three new gas cookers launched in the past 12 months are further products of the work of the development teams and design unit. Substantial progress has been made in dealing with one of the most difficult general problems associated with the use of gas appliances—the disposal of products of combustion. Important principles have been established in the design of draught diverters and terminals, and other more novel methods of rendering appliance performance independent of chimney conditions are also under examination. The fuel industries as well as the group will benefit from technical advances which are bound to follow the application of the results of research on the various types of apparatus in which the company is interested.

Dr. Hartley's speech was severely factual but it was far from gloomy. The public's purchasing power, he reminded us, is still healthy, and he is confident that an increase in demand will result, although in certain spheres it may not be as great as in 1951.

NORTH THAMES TO PEG PRICES

MR. MICHAEL MILNE-WATSON, Chairman of the North Thames Gas Board, told the Gas Consultative Council at its meeting last Thursday that the increase in the price of coal which became effective on March 2 was calculated to

cost the North Thames Gas Board 6s. a ton. Making due allowance for increased revenue from the sale of coke and breeze, this would cost the Board nearly £900,000 per annum. If this increase were passed on to gas consumers it would seriously contribute to the present inflation, as the Board supplies nearly one-sixth of the country's gas, but in the hope of assisting to keep down the cost of living the Board had decided not to pass on the increase. It was helped to this decision at the present time because of increased sales of gas and more efficient operation, but it would be idle to suggest that the position could be held in the future without continued effort throughout the Board's working. Encouraged by the statement of Sir Hubert Houldsworth (Chairman of the National Coal Board) that, in his opinion, we have reached the limit of increased coal prices, the Board gave an undertaking that, provided there are no major increases in the price of coal or other basic costs, it will peg the price of gas at its present level for domestic, commercial, and industrial consumers, at least until March 31, 1954.

The following message has been sent by the Gas Council to Her Majesty the Queen:

Members of the Gas Council present their humble duty to Her Majesty the Queen and beg to express their profound sorrow at the death of Her Majesty Queen Mary and to convey to Her Majesty and to all Members of the Royal Family the deepest sympathy in their bereavement.

1953 'Journal' Directory

THE following changes have been notified during the past month. To keep the information in the 1953 edition of the *Gas Journal Calendar and Directory* up to date readers are invited to note these alterations (together with the appropriate adjustments relating thereto in the 'personnel' section of the *Directory*, pp. 141-156):

Page 26.—GAS COUNCIL: R. F. Hayman, *Industrial Gas Development Officer.*

„ 55.—NORTH THAMES GAS BOARD: F. R. Darling (formerly Assistant Sec.), *Deputy Sec.*; L. W. Smith (formerly Assistant Ch. Accountant) *Deputy Ch. Accountant;* J. H. Walker, *Deputy Mech. Engineer,* Beckton; A. W. Lamond, *Works Manager,* Staines; G. C. Smith, *Assist. Products Accountant;* A. D. L. Copp, *Deputy Distributing E.;* C. D. Shann, *Asst. Distributing E.;* A. K. Shaer, *Div. Accountant,* Eastern Division; J. L. Smith, *Div. Accountant,* Central Division; E. G. Elms, *Accountant,* Transport Department. Commercial District now forms part of the Central Division, H. E. F. Heath *Local Manager,* Commercial District.

„ 180.—WOMEN'S GAS FEDERATION: Miss Jessie Frith, O.B.E., *Gen. Sec.;* Miss Barbara Sim, *Editor, Press and Publications Officer,* vice Miss M. F. Flack, resigned.

„ 189.—COKE OVEN MANAGERS' ASSOCIATION: G. W. Chambers, *Hon. Sec.*, address changed to 21, Manor Road, Brampton Bierlow, West Melton, near Rotherham.

In the monthly list of alterations published in the *Journal* of March 4 (p. 500) it was recorded that Crewkerne had been transferred from the South Western to the Southern Gas Board. This was incorrect. The Order made by the Minister on February 16 (S.I. 1953 No. 239—Gas (Undertakings of Area Boards) (Transfer) Order, 1953) confirmed the arrangement which has been in force since vesting day. It was only the Beaminster undertaking of the former Crewkerne Gas and Coke Company which was transferred to the Southern Gas Board.

Personal

Mr. K. E. Jones, Divisional Engineer, Worcestershire-Herefordshire division, West Midlands Gas Board, has been appointed Deputy Divisional Manager of that division.

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Sir George Gater, G.C.M.G., K.C.B., D.S.O., Chairman of the Building Apprenticeship and Training Council since 1947, has tendered his resignation to the Minister of Works. The Minister has appointed **Sir Frederick Leggett,** K.B.E., C.B., as Chairman of the Council with effect from April 1. Sir Frederick was Deputy Secretary and Chief Industrial Commissioner of the Ministry of Labour and National Service prior to his retirement in October, 1945.

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Mrs. Alison Settle (journalist), **Mr. J. Cleveland Belle** (Director of Horrockses Crewdson & Co., Director of Aquascutum, Ltd., and consultant to the Cotton Board), **Mr. A. W. Hewitt** (Managing Director of W. T. Copeland & Sons, Ltd., Director of Barker Bros., Ltd., China & Earthenware Millers, Ltd., and a part-time member of the West Midlands Gas Board), and **Mr. Osbert Lancaster,** have been appointed members of the Council of Industrial Design. The President of the Board of Trade has also reappointed **Mrs. Helen Bentwich** and **Mr. Robin Darwin** to be members of the Council on the termination of their existing appointments.

Diary

April 7.—South Eastern G.C.C.: Katherine Street, Croydon, 2.15 p.m.

April 8.—South Western G.C.C.: 34, Bridge Street, Taunton, 11 a.m.

April 11.—Scottish (Eastern) Juniors: Paper by I. M. Anderson. Kirkcaldy.

April 14.—Wales Juniors: 'The American Gas Industry,' E. M. Edwards. Hereford.

April 15.—Eastern Section, I.G.E.: Visit to Peterborough Gasworks.

April 15.—Yorkshire Juniors: Visit to Works of De La Rue, Ltd. Warwick.

April 15.—Manchester Juniors: Evening Meeting at Radiant House, Liverpool. Reading of Papers.

April 16 and 17.—Scottish Association of Gas Managers: Spring Meeting at Peebles.

April 16-17.—Wales and Monmouthshire Section, I.G.E.: Spring Meeting, Hydro Hotel, Llandudno.

April 17.—Scottish (Western) Juniors: Annual General Meeting: Technical College, Glasgow.

April 18.—Manchester Juniors: Visit to Birchenwood Coke Ovens, Kidsgrove. 'Liquid Purification,' R. Pollard.

April 18.—London Juniors: Afternoon Visit to Bromley Station of the North Thames Gas Board, 2.15 p.m.

April 21.—London and Southern Section, I.G.E.: 'The Law and the Gas Industry,' R. G. Huxtable, M.B.E., 17, Grosvenor Crescent, S.W.1.

April 24.—Midland Section, I.G.E.: Annual General Meeting, Birmingham.

April 24.—Manchester and District Section, I.G.E.: Annual General Meeting, Manchester.

April 25.—Western Juniors: Weston-super-Mare. Visit to Works. Annual General Meeting and Presidential Address.

April 27-28.—Industrial Gas Conference, Birmingham.

April 28.—Midland Juniors: Annual General Meeting; Staff Mess Room, West Midland Gas Board, Council House, Birmingham.

April 27-May 8.—British Industries Fair, Castle Bromwich. Gas Council Stand No. D.641/540.

April 30.—North Thames G.C.C.: Westminster City Hall, Charing Cross Road, W.C.2.

May 1.—London Juniors: 'Southampton's Gas Distribution System,' R. K. Harrison. 178/180, Edgware Road, W.2, 6.30 p.m.

May 5.—East Midlands G.C.C.: Victoria Station Hotel, Nottingham, 11.30 a.m.

EASTERN GAS BOARD CONGRATULATED

AS briefly reported in the *Journal* of March 18, the Eastern Gas Consultative Council on March 16 received with satisfaction an intimation from the Eastern Gas Board that it did not intend to make any immediate increase in the price of gas to meet the increased cost of coal. Alderman R. Turner presided.

The effect of the increase in the pithead price of coal which took effect from the beginning of March was estimated to amount to an average increase of 6s. per ton and will cost the Board for coal alone a further £493,000. This was not the only increase which the Board had to face, for wages and salaries and freightage and some other items had brought the total increases in a year to £650,550, after taking into account the increase in the price of coke. It was 15 months since the last increase in the price of gas took place, and the Council was relieved to learn from the Board that although it would appear impossible to avoid a further increase in the price of gas, it had decided to postpone this as long as possible.

A detailed report on the increases which had taken place in the price of gas since vesting date showed the total number of places served by the Eastern Gas Board was 95 and at 73 of these places, the increases did not exceed 25%. Ten had been increased by not more than 40% and in four places the price had been advanced by more than 40%, notably at Berkhamsted and Peterborough, but these two places still enjoyed the lowest prices in the area. The report stated that it was not easy to see what had been the effect on the industrial and commercial user, because a single all-purposes tariff had replaced the large number of tariffs which had existed at vesting date and the effect would vary from place to place. But it could be assumed that the price of gas to this class of consumer had in the main advanced more rapidly than to the domestic consumer. The tariffs committee had decided to look further into the matter.

The Council agreed that the Board was to be congratulated on having stabilised the price over so long a period and realised it would be extremely difficult to avoid a further increase in the price of gas. If, however, the present restrictions on the sales of appliances were removed, the position would be considerably eased.

A report on flood damage of gasworks in the area was received and the Council asked for a report of the cost of reinstatement. It felt that this should be a national charge. Several members commended the Board and its employees on the manner in which they had tackled the problem of restoring the gas supply and the Chairman paid a tribute to the workers who so heroically stuck to their jobs during the crisis and the splendid spirit displayed by those who volunteered to go into the districts to get matters right again. It was heartening to hear of the heroism and devotion to duty, sometimes by men whose own homes had been devastated.

The Chairman felt that there were two things which could be placed to the credit of nationalisation, for the Eastern area now being one unit, the larger works like Tottenham and Watford went immediately to the aid of the smaller works as a matter of course and the help they rendered was enormous. The second point he made was that the cost would now be spread instead of falling on the individual communities where damage had occurred.

The Council learnt of a shortage of shillings to operate slot meters and it was pointed out that with the higher cost of commodities, it was obvious that more shillings would be required and the Council promised to watch this point.

An Italian Centre of Consultation

WHEN the Italian Technical and Scientific Press Association (A.I.S.T.S.), reorganised on new lines, was able in 1949 to resume its activity, which had been interrupted by the last world war, one of the aims outlined in the programme issued by the Council of the Organisation was that of setting up in Milan a permanent centre of consultation for the Italian and foreign technical and scientific Press which would be on a par with the major institutions of its type at home and abroad.

Libraries of cultural, academic, and industrial organisations, both public and private, are not lacking in Milan. But the great majority of these libraries, if not practically all, do not cover the periodicals of the entire technical and scientific field. The scholar is thus very often compelled, in his bibliographical researches, to travel the length and breadth of the city to find the publication which interests him and to find a means of consulting it.

The end in view, therefore, was to facilitate the scholar's work without in any way supplanting the other valuable libraries of the kind in Milan, but simply fulfilling an auxiliary function. A further aim was to put technical and scientific literature at his disposal in a place where at the same time he is given the possibility of completing his knowledge by inspecting applications of technique and science in practice, displayed in the adjoining National Museum of Science and Technics opened in February.

This library will also be at the disposal of those scholars using the A.I.S.T.S. periodical centre of consultation.

'TAKE IT FROM HERE'

THE AVAILABILITY AND SHOWING of publicity leaflets and folders in showrooms and at exhibitions often presents difficulties owing to the literature 'curling-up' and appearing generally untidy after a few days display.

A mobile literature trolley, which by its very novelty of design attracts customers' attention is solving this problem in the showrooms of the Newcastle division of the Northern Gas Board.

This trolley, made in their own fitting shops, the cabinet of which is constructed of sheet aluminium, sprayed in ivory finish, and suspended within two chromium plated circular tubes and mounted on four ball-bearing rubber tyred wheels, is divided into 24 compartments (12 each side). Each compartment is inclined and fitted with light spring clips, so shaped as to keep the literature in position and perfectly flat. The extreme lightness and manœuvrability of this trolley allows of easy and noiseless movement within the showroom.

OUR photograph shows sales and service managers of the East Midlands Gas Board on the stand of Parkinson Stove Company at the Gas Sales and Service Conference exhibition at the Seymour Hall. Mr. G. L. Anstey, Sales Manager of the Company, is explaining details of the Coronation Renown cooker, eye-level grill, to (left to right) W. J. Steed, Sheffield and Rotherham Division, J. Hudson, Lincoln and A. Wylie, M.B.E., Sheffield.

Youth in the Kitchen

A NATIONAL Youth Cookery Competition, sponsored by the Gas Council, is to be organised in all parts of England, Scotland, and Wales, to stimulate the interest of young people in the art of cookery and to improve the national standard of cooking. The competition will be open to young people of both sexes between the ages of 15 and 19 (with the exception of employees of the gas industry) and will be run in collaboration with the 12 area gas boards.

The competition will begin in October, starting in small units, working through stages to semi-finals on a large scale in each of the areas—then to the final, which will be held on April 6, 1954, at the Royal Festival Hall, London. All cooking throughout the competition will be by gas and will be performed before judges. The test for Round 1 will be a simple dish, but the competition will increase in difficulty as the stages advance. Competitors in the semi-final and final will cook before large audiences. Round I will be largely organised within youth organisations and educational institutions, but there will also be open rounds for those not attached to any organisation.

Prizes will be awarded at each stage of the competition, and the national winner will receive a training or educational award to the value of £100.

The Best Apprentice

ALAN HALL, an 18 year old apprentice trained at the Stratford centre, has been awarded the William Dieterichs shield, and prize, as 'the best apprentice of the term' at the North Thames Gas Board's Stratford, Slough, and Watson House training centres.

His father, Mr. Tom Hall, is a well-known personality at Beckton works, where he has worked on the locomotives for 33 years and is chairman of the elected representatives of the joint works committee. For the third time a Stratford apprentice has won the shield, and it is only the fifth time that the shield has been awarded.

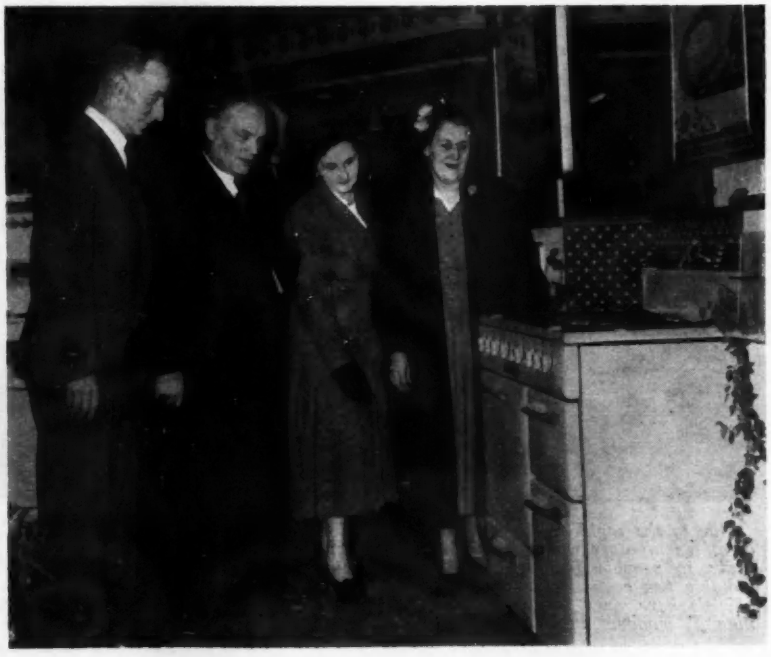
'International Kitchen' Recipes Published

'INTERNATIONAL KITCHEN,' an illustrated book of recipes selected from dishes shown by 22 countries which took part in the Gas Council's Exhibition of International Cookery, held last November at the Royal Festival Hall, London, has now been published.

Her Majesty Queen Elizabeth, the Queen Mother, who visited the Exhibition, has graciously consented to accept a copy of the book.

All the national dishes can be prepared from ingredients available to the British housewife. The book contains some interesting culinary information on each country and pictures of the dishes and the demonstrators in their kitchens at the Royal Festival Hall.

'International Kitchen' has been compiled by Good Housekeeping Institute, in collaboration with the Gas Council. It is on sale at 5s.



A VISITOR to the stand of Radiation Group Sales Ltd. at the Ideal Home Exhibition was Councillor Edwin Bayliss, D.L., J.P., Chairman of the L.C.C. and Chairman of the North Thames Gas Consultative Council. Mr. Bayliss, who was accompanied by his wife and a friend, showed great interest in the appliances, particularly in the New World 3518 range, which the party is here seen examining.

Portsmouth Staff Dance

AMONG the 600 dancers at the fifth annual dance of the Portsmouth branch of the British Gas Staff Association on January 30 were Mr. W. E. Webb (Chairman of the B.G.S.A.) and Mrs. Webb; Mr. W. K. Tate (Divisional General Manager Eastern Division Southern Gas Board) and Mrs. Tate; Mr. H. M. Lawrence (General Manager, Portsmouth group) and Mrs. Lawrence; Mr. A. J. Privett (Sales Manager, Portsmouth); and Mrs. Privett; and Mr. Robson (Group Accountant, Portsmouth).

The programme was full of interest and included competitions between Portsmouth and Southampton members, both for ladies and gentlemen.

A retiring member, Mr. H. Purkis, was presented by Mr. Webb with a clock, the gift of his Association colleagues.

Mr. Tate congratulated the committee on organising the evening, and voiced the appreciation of the guests.

Bouquets were presented to the visiting ladies. Many prizes and novelties were distributed, and non-dancers were catered for by a whist drive. The M.C's for dancing and whist were Mr. I. Evans and Mr. J. Samphire.

A New Water Gas Plant will shortly be brought into operation at Middlesbrough by the Northern Gas Board and will increase the output of the Board's Middlesbrough unit by 1 mill. cu.ft. to 13 mill. cu.ft. daily. Up to now Middlesbrough has used coke oven gas from Dorman Long and Co.'s works. The firm has intimated, however, that after 1955 it is proposed to use this gas for furnace firing. The new plant at Middlesbrough is to offset the reduced supply of gas when the supply from Dorman Long ends.

COMPANY NEWS

GENERAL REFRACTORIES

A sharp increase in dividend from 11% to 15%, less tax, is recommended by General Refractories. Group trading profits for 1952 rose to £634,741, compared with £529,731. After deduction of tax totalling £295,038, against £257,062, net profits were £187,454, compared with £142,372.

CAMBRIDGE INSTRUMENT CO.

Profit of the Cambridge Instrument Co., Ltd., for 1952 was £491,470, compared with £394,637 for 1951, increased with other income to £516,429 (£418,162). After depreciation £10,397 (£9,789), special depreciation buildings £20,000 (nil), employees' bonus £27,648 (£23,985), pension and welfare £13,688 (£9,924), etc., balance £430,796 (£361,934). To tax £293,196 (£254,475)—including £30,000 E.P.L.—general reserve £33,000 (nil), building plant and stock reserve £5,000 (£20,000), final ordinary dividend 6d. per £1 share, making 3s. 6d. tax free £98,680 (£92,306), forward £42,473 (£42,280).

POWERS SAMAS

A final dividend of 1s. 4½d. per 10s. share is recommended by the Board of Powers-Samas Accounting Machines, a subsidiary of Vickers, to make a total of 2s. 3d., or 22½%, for 1952 on the £1,500,000 issued capital. These dividends absorb an increased amount of £177,187, against £122,850, the payments for the previous year comprising a 17½% interim on the capital prior to the 100% scrip issue, followed by a final of 12½% on £1,040,000 capital. The preliminary statement discloses that group trading profits have risen from £1,047,875 to £1,180,626, subject to audit. The group net profit is £284,300 (£308,034).

DONALD MACPHERSON

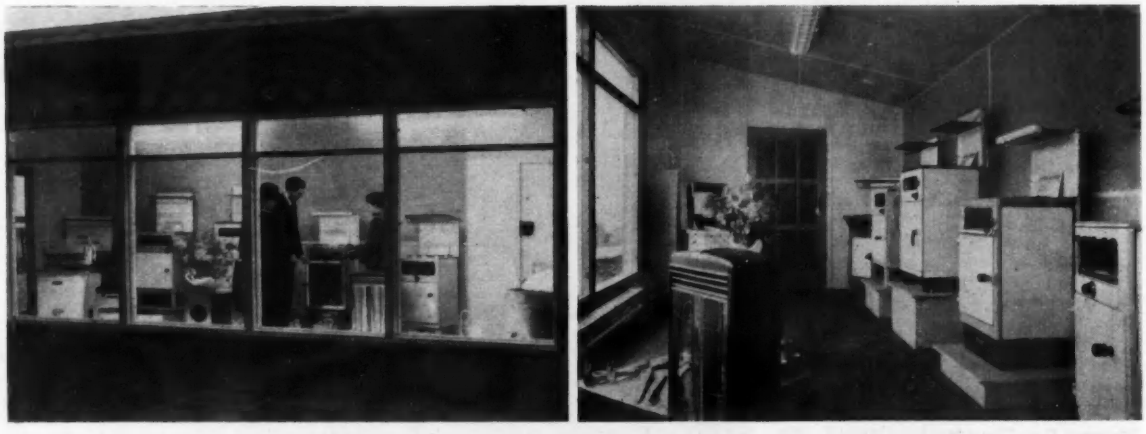
The 58th annual general meeting of Donald Macpherson & Co., Ltd., was held on March 12 at Winchester House, Old Broad Street, London, E.C., Mr. R. P. Chester, J.P., (Chairman and Managing Director), presiding. In the course of his statement the Chairman said: Our trading profit for the year shows an increase of £25,773, but against this maintenance, repairs and upkeep of buildings, plant and equipment, together with the provision for depreciation, also show an increase of nearly £15,000. The net profit for the year, before taxation, amounts to £200,623, an increase of £12,553 over 1951. Taxation provision for the year, however, calls for £130,000, leaving £70,623 available for distribution.

An interim dividend amounting to 25%, on an issued capital of £120,000 has already been paid and your directors propose to recommend a final dividend of 16% on the increased capital of £300,000, the total distribution for the year being thus maintained at a rate equivalent to that for last year.

It is proposed to transfer to general reserve the sum of £18,851, to transfer a further £5,000 to pension fund and to write off the expenses of the capitalisation of reserves of £2,893, leaving a net balance of undistributed profits for the year of £2,929. This, with £81,229 brought forward from last year, makes a total to be carried forward of £84,158.

Present indications are that materials are likely to continue in reasonably free supply and, while there has undoubtedly been a lessening of demand in some sections of our production due to enforced restrictions on expenditure in certain markets, I feel that in the absence of unforeseen circumstances there is a reasonable prospect of maintaining trading profits.

TEMPORARY SHOWROOM FOR PETERLEE



Due to the rapid development of the Peterlee unit (which includes the Blackhalls and Horden, in addition to the new town area), a temporary wooden showroom has been erected in the shopping centre of the north-east sector of the new town, in order to provide facilities for the display of appliances, dealing with enquiries, and the payment of accounts. The building has been decorated to harmonise with the existing permanent buildings, and Peterlee Development Corporation officials have given valuable assistance and advice in order to give the showroom the appearance of being something more than a 'wooden hut.' In addition, the surrounding site is being laid out with lawns, shrubs and flower beds. Peterlee is served by the Hartlepools unit of the Stockton division, Northern Gas Board.

WOMEN'S GAS FEDERATION EAST MIDLANDS AREA CONFERENCE

Members from twelve branches assembled for the afternoon session.

MEMBERS of the Women's Gas Federation from branches all over the East Midlands assembled at the Co-operative Hall, Belgrave Gate, Leicester, on March 17, for the first East Midlands Area Conference.

Membership of all the Women's Gas Federation branches in the area has been steadily growing and eight new branches have been formed during the past 18 months. Total membership is now 1,170, and on this occasion parties of members totalling several hundred attended from branches at Barnsley, Chesterfield, Doncaster, Grimsby, Leicester, Loughborough, Newark, Northampton, Nottingham, Rotherham, Sheffield, and Worksop. Guests included the Chairman of the East Midlands Gas Board, Mr. Sydney Smith, the Deputy Chairman, Mr. E. H. Harman, and Board members Alderman C. R. Bates and Councillor S. J. Perry. Among the members present were the Mayoresses of Doncaster, Rotherham, Loughborough, and Worksop.

The conference was opened by the Lady Mayoress of Leicester, Mrs. Geoffrey Barnett, Miss O. L. Humphries (Chairman of the Women's Gas Federation) being in the chair. Mr. Sydney Smith was the first speaker of the morning session, which was given over to more serious topics. In a general address he explained how the gas industry helped the housewife in many ways, and emphasised its desire to give her the best possible service. 'We realise,' he said, 'that the best way of selling our products is to take careful note of what housewives want from us. That is why we welcome the Women's Gas Federation.'

The other speaker during the morning session was Dame Vera Laughton Mathews, Adviser on Women's Affairs to the Gas Council. Dame Vera, a popular speaker in Women's Gas Federation circles, was warmly received and addressed the assembly in her usual forthright manner. Urging the wider use of smokeless fuels, especially coke, Dame Vera attacked the 'nutty slack campaign,' saying, '. . . . over 300 deaths in one week occurred during the recent fog which, incidentally, followed immediately on the campaign that was launched to buy nutty slack. It is quite certain that slack, especially when it is banked or damped down, is a most efficient producer of thick, oily, tarry smoke.'

Dame Vera also dealt with some fallacies regarding the structure of the nationalised gas industry, and with the wasteful use of coal on continuous burning fires intended for coke.

After a break for lunch the conference resumed for its lighter side, heading which came the Television Cook, Mr. Philip Harben, speaking in his usual light and witty manner on 'Fallacies in Cooking'—and a great number he found. If at times his assertions nearly brought down coals of fire on his head, it was obvious that his audience was stimulated by his talk.

The last item on the conference programme was a spring fashion parade of latest fashions arranged by a local store, after which the Chairman of the Newark branch, Mrs. Bowen, closed the conference. Members enjoyed a buffet tea before departing for their homes.

PROPOSALS FOR THE ERECTION of a Lurgi plant in Scotland at Bogside, near Bowhill, to utilise low grade coal for gas making, are being investigated by the N.C.B. and the Scottish Gas Board. It is understood that samples of the coal have been handled in a Lurgi plant at Oberhausen-Holten, near Duisburg, in Germany, with satisfactory results. The economic and practical aspects of creation of a plant of this type on this site are now being investigated.

The system would provide high pressure gas for dispersal to town mains through a grid system or alternatively be used to develop electricity. The importance of such development would lie in its capacity to utilise lower grade fuels, to free quality fuel for other purposes, and to add to existing gas resources.

AFTER A SEVEN-DAY HEARING in the Ulster High Court of an action for damages for personal injuries, a special jury awarded Robert Kinnear £5,000 for injuries sustained by him in a gas explosion at the offices of Shell-Mex and B.P., Ltd., Belfast, on April 11, 1949. The defendants were Belfast Corporation and the Shell-Mex Company.

Kinnear, who was cashier to Shell-Mex, was permanently incapacitated by the accident. The action was brought as a test case, and four other claims depend to a large extent upon the outcome of this case.

Special damages had been agreed at £535. The jury apportioned the award £4,000 to be paid by the Corporation and £1,000 by Shell-Mex.

LEAD PIPE has, through long use, proved itself a satisfactory material for interior work. Considerable quantities of lead gas pipe are used in many parts of the country, particularly in existing buildings that require extra appliances.

For such work, where the structure often limits the space in which pipes are to be installed, the flexibility of lead pipe makes it possible to overcome installation difficulties. The Lead Industries Development Council has published a booklet, *Lead Pipe for Gas Distribution in Buildings*, covering the types of lead gas pipe available, methods of fixing and jointing, and typical meter connections. Copies are available from the Council at Eagle House, Jermyn Street, London, S.W.1.

Negotiation and Joint Consultation

THE concluding meeting of the series organised by the Institute of Public Administration to discuss negotiation and joint consultation in the public services was devoted to a debate on the following motion: 'That separate standing organisations for negotiation and for joint consultation are wasteful and unlikely to maintain confidence between official and staff sides.'

The motion was proposed by Dr. A. B. BADGER, Industrial Relations Officer of the Gas Council, and was opposed by Mr. H. D. L. MINTON, Deputy Director-General of the Labour Relations Department of the National Coal Board. The chair was taken by Mr. ANTHONY BULL, Chief Staff and Welfare Officer of the London Transport Executive.

Dr. BADGER, who made it plain that he was speaking in a personal capacity and not on behalf of the Gas Council, said that he would support his case by citing examples from three of the largest nationalised industries—coal, gas, and electricity. He omitted transport where at some levels the functions were combined in a single body and at others are separately handled. In coal and electricity, on the other hand, there was separate machinery from the national level downwards, whereas in gas there was no such distinction except at works level.

He excluded from the scope of his remarks all reference to training and education because they were not specifically mentioned in the Acts as consultative functions, being dealt with in other sections.

Three Principles

His own views on the subject, Dr. Badger went on, had been made plain six months before vesting date in the gas industry, when he had been asked to draw up a memorandum on industrial relations after nationalisation. He had advocated three principles among others. First, that there should be no avoidable departure from past practice; second, that the trade unions should not encounter great changes in their traditional methods of approaching the industry so as to obviate any feeling of strangeness which might adversely affect the harmonious relations which had been built up. And thirdly, that there should be no unnecessary duplication or cumbrousness in the machinery so as to achieve a still more expeditious handling of industrial relations. These principles, which he had written down four and a half years ago, still seemed to him to be sound. It was interesting that the workers' side of the National Joint Industrial Council for the Gas Industry had independently come to the same conclusions.

The sections of the Acts relating to consultation were practically identical in the three industries. Each was required to seek consultation with appropriate organisations on questions of health, safety, and welfare, and on other matters of mutual interest, including efficiency in the operation of the industry. Their reactions had been different: coal and electricity implemented their responsibilities in one way, the gas industry in another.

In the coal industry there was machinery from the national level down to local level for consultation separate and distinct from that for the negotiation of terms and conditions of service. There had been set up a national consultative council, divisional consultative councils, area consultative councils, and colliery consultative councils, as well as a coal industry social welfare organisation dealing with matters affecting employees and their families in their leisure time.

Electricity had dealt with the matter in much the same way. The gas industry, on the other hand, had set up separate consultative committees only at the local level. All that the national organisation had done was to prepare a model constitution which could be adapted to suit local needs. Consultative work at area and national level was conducted through the same organisations as were concerned with conditions of employment; there was no duplication except in the localities.

What More Latitude?

Dr. Badger turned back to pre-vesting conditions in electricity and gas in these matters. The National Joint Industrial Council for the Electricity Supply Industry was empowered to take action on a wide variety of subjects. These included the establishment of works committees; the collection of statistics and information; the holding of enquiries into industrial problems; the encouragement of study and research; the utilisation of inventions; the improvement of social and health conditions of the workers; and the conduct of lectures and conferences. The constitution of the corresponding council for the gas industry made similar provisions. What more latitude, he asked, did they want than that? With such wide and comprehensive terms of reference, why was it necessary to set up separate machinery at national and area level, with all that it entailed in time, expense, and trouble not only for the staff concerned, but for trade union officials and management who had to attend the meetings of this extra machinery?

Was it not prudent, he asked, in any walk of life to ascertain beforehand whether there was a real need for machinery before setting it up. If not, they could not be surprised if they did not get enthusiastic support and collaboration. It seemed like forcing the machinery on the workers and expecting them to cry out 'Hallelujah!' And in fact they did not call out 'Hallelujah!' It now became necessary to find ways and means of feeding the machinery whether it was necessary or not.

Dr. Badger then considered some of the arguments commonly advanced to justify the establishment of separate machinery. The first was that consultation concerned matters of interest to all sections of employees whereas negotiation involved only sectional interests. This argument contained two fundamental fallacies. The first was that there could be drawn a strict line of demarcation between matters of consultation and negotiation. He quoted the report of the Acton Society Trust entitled *Framework of Joint Consultation* to show that in practice such a line was difficult to draw. The Trust report said 'A question of welfare facilities—the provision of a new wash-room, for example—may *begin* as a consultative matter and then, as the question of its manning and siting come up, develop into a negotiating one.' The second fallacy in this argument, said Dr. Badger, lay in the assertion that there were no sectional interests involved in matters of consultation. In refutation of this view he cited the case of a bricklayer working in dust conditions who would be interested in health measures to eliminate the risk; but accountants would not be interested in such a matter. Similarly, questions of efficiency affecting craftsmen would be of little concern to clerical workers. And such instances could be multiplied a thousand fold.

Another argument for separation was that it saved time, because matters need not be dealt with in a series of negotiating councils. Against this he maintained that only problems which affect a particular group of employees need go to the appropriate negotiating council and there need be no duplication. He believed that there was plenty of wasted time and frustration in the process of referring matters to the large number of consultative committees at various levels.

Two Sides

Dr. Badger then examined the argument that it was not possible to discuss consultative matters in the heated atmosphere of a committee concerned with wage negotiation and that they had to be brought to another where they were all friends and everything went smoothly. But, in fact, there were two sides to consultative machinery just as there were to negotiating committees. He thought it an odd argument that the machinery which gave something (namely, the negotiating machinery) should never be required to ask for something in return. This was contrary to commonsense and to experience in all walks of life.

He thought that the argument that consultative matters were of long-term and negotiation questions of short-term interest was artificial and unrealistic. Was the danger of lung disease of less interest than a wage question, or, on the other hand, the formulation of a wages-structure of short-term concern?

There were other disadvantages of separate machinery which Dr. Badger went on to describe. He thought that it had a detrimental effect on discipline if the decisions of local managers could be challenged at local, divisional, and national level. Many trade unions thought that consultation was a logical extension of negotiation and should be handled by the same organisation; they feared, too, that separate committees might undermine their status. Separate machinery confused the employees who

could not understand the distinction between the two kinds of function. It multiplied committee meetings and involved administrative elaboration. And finally he thought that it had the effect of preventing initiative from arising at the lowest levels and failing to encourage the people in daily touch with the practical problems from bringing them forward.

Replying briefly to Dr. Badger's case, Mr. MINTON objected to the terms of the motion because it was presented as a universal proposition. He thought that even Dr. Badger made it clear that the same considerations did not apply at all levels; in the gas industry they found it necessary to have a separate organisation in the localities. They had to adapt the machine to the circumstances and they must take account of the historical antecedents of the industry. A single organisation had formerly worked well in the coal industry when they were dealing only with national policy and large plans of development.

The necessity for separation came from the fact that the subsequent procedure in the two functions was different. In negotiation if they failed to agree on an issue it had to go to arbitration and the findings were binding on both parties, but consultative matters were purely advisory and it was open to the management not to accept the recommendations —though they seldom did so.

Mr. Minton thought there was more in the argument about the atmosphere of joint councils than Dr. Badger admitted. If there was a meeting with both types of matter on the agenda and there was violent disagreement over a matter of negotiation there would not be the proper frame of mind to discuss plans for future co-operation. On Dr. Badger's point that consultation might result in a local manager being overridden, Mr. Minton said he would have thought that a manager who was going to take some action would make it his business to consult before he took it. As for the alleged jealousy of the trade unions, he pointed out that in the coal industry there had been consultation with the unions before the machinery was set up and it was with their full concurrence that separate machinery had been established.

Sitting on the Fence

In the general discussion which ensued Mr. SNOW, of the Road Haulage Executive, said that in road haulage the consultative machinery at top and bottom levels was unified with that for negotiation; at intermediate stages there were separate bodies, but the same personnel participated in both. 'We are in a sense,' he said, 'sitting on the fence.'

Mr. FOWLER (British Electricity Authority) said that Dr. Badger had described the difficulties in electricity, but had not shown the remedies; the difference between gas and electricity was really that in the former labour relations were decentralised in contrast to the position in electricity.

Joint consultation need not be carried out through any form of organisation in which trade unions participate, thought Mr. MANSER (London Transport Executive); it was a job for supervisors and foremen who had been neglected in recent years. This was a sphere where they could be brought into their own.

Mr. ERNEST LONG (British Electricity Authority) maintained that Dr. Badger had shown no positive merits in the system operating in the gas industry and he challenged him to say what was in fact being done by way of local consultation: how many local committees were in being? He told the tale of a foreigner who sat in at a joint meeting held to resolve a trade dispute in this country. When it was settled the visitor remarked: 'But you have only reached agreement; you have not got at the truth.' In negotiation, said Mr. Long, they aimed at getting agreement; in consultation, at reaching the truth.

Replying to the discussion, Mr. Minton remarked that though the consultative and negotiating machinery in the coal industry were separate, there was considerable interlocking of membership.

Dr. Badger, in answer to Mr. Long's enquiry, said that in the gas industry they had established a model constitution for local consultative committees and they were functioning in large numbers. He agreed that the motion which he was sponsoring was not universally true.

The motion was put to the meeting and carried by 52 votes to 44.

North Thames Presentations

MR. F. M. BIRKS, C.B.E., Deputy Chairman of the North Thames Gas Board, recently presented long service awards to 45 employees, each of whom have completed 40 years service in the industry. Among those receiving awards were 14 men from Beckton works whose families between them have totalled nearly 1,400 years' service with the Board and its predecessors.

These men were H. Benns, W. A. Choppen, O. Crummey, J. Fellows, G. Gudgion, H. F. Hammond, W. H. Humphries, C. A. Ives, W. J. Lummie, T. Miller, E. R. J. Smith, W. Stubbs, J. Sullivan and H. C. Wood.

Sporting activities were also well represented at the ceremony, six of those receiving awards being well-known personalities in the Board's sporting circles. They are F. Adams (Poplar), a well-known boxer in his youth; G. J. Beaven (Harwood Terrace), Chairman of Harwood Athletic Club and Vice-Chairman of the Area Sports Committee; J. J. Blackburn, a former winner of the angling society's gold medal; R. F. Brooks, Assistant Secretary of the former Gas Light Cricket League; G. A. Froom, a past winner of the London Gas Bowling Association's singles championship, who has also played for Middlesex County, the London Business Houses and the London Gas Bowling Associations; and J. C. Kirrage, who was Captain of Harwood Terrace Cricket Club for 23 years.

Dealer Co-operation

In the course of an address to the Bedford Ironmongers' Assistants' Association, Mr. A. C. Hazel, Managing Director of Hurseal, Ltd., stated that he felt the time had come when the ironmonger should take his rightful place as a distributor of gas appliances. He emphasised that in each town there was usually only one gas showroom, but several ironmongers, and he could not help but feel it was in the interests of the gas industry to persuade ironmongers once again to sell gas appliances. He mentioned that as far as his own company was concerned, 90% of the sales were at the moment through ironmongers and builders' merchants. On the other hand, Mr. Hazel emphasised that it was desirable that all appliances sold by ironmongers should be approved by the gas boards. Most reputable manufacturers were only too happy to submit their appliances for official approval, but once this had been done there was no reason at all as far as he could see why manufacturers should not encourage ironmongers to develop the sale of gas appliances.

Vespa Autocars

The North Eastern Gas Board has lately put into service a number of these Douglas 'Vespa' autocars for the use of maintenance and fitting staffs.

THE SCIENTIST IN THE COAL INDUSTRY

Abstract of an address by Neville Simpkin, Deputy Divisional Chief Scientist, North Western Division, National Coal Board, to the North Western Fuel Luncheon Club

AT vesting date 50 or 60 companies were amalgamated to form the North Western Division of the nationalised coal industry. The Division comprised five areas, roughly, Manchester as far as Leigh, Wigan, St. Helens, Burnley from Accrington to Nelson, and the North Wales coalfield mostly concentrated round Wrexham with Point of Ayr 20 miles away. The whole Division extends 80 miles from north to south.

The scientific service of the coal industry in the North West is not a product of nationalisation; it had existed for 25 years before vesting date. Lancashire and Cheshire collieries had a research association and several of the larger companies, such as Manchester Collieries, had their own laboratories. At vesting date a laboratory was set up in each area. There was then a total staff of about 70, but the number of qualified scientists was small; today there are three times that number. In addition the old survey laboratories at Chester are doing valuable work on the survey of seams, proving the existence or otherwise of reserves for output in the future. The area laboratories deal with local problems, the central laboratory with research and investigation, and the survey laboratory continues the work carried out by the D.S.I.R. prior to 1948.

Mr. Simpkin outlined the work of each type of laboratory. The area laboratories have first their statutory duties, the analysis of road dust (some 76,000 analyses per annum), mine air samples (12,000 per annum), complete analyses for methane (28,000 samples), quality control of 500 grades of fuel marketed in the Division with problems arising, including customers' complaints, loss on cleaning, variability of fuel, washing properties, and sizing. Colliery problems include steam raising and boiler water control, bath effluents, and river pollution generally.

Methane is a most important problem. It is non-poisonous but mixtures of 5% to 14% with air are highly explosive. Regulations require that if electricity is in use in a mine it must be cut out whenever methane reaches a certain percentage in the mine air; if it continues to rise all men must be withdrawn. This involves a large number of tests to ensure the safe running of the pit.

'The lot of the Area Chief Scientist is not a happy one, but he does have his interesting side lines. A local farmer says his cow has died after drinking water from the pit and we have to investigate. We were not guilty. The miners had refused to drink the canteen tea because of the taste—traced to over-chlorination. The reservoir was getting filled up with a certain weed; the problem was solved by the introduction of the right kind of duck.'

The central laboratory has a staff of about 50. The staff include chemists, physicists, mathematicians, mining engineers, metallurgists, and technicians including fitters, glass blowers, photographers, etc. Their motto is to be prepared for everything.

The central laboratory is interested in gas analysis; it investigates methods for determining methane, etc. The reason for that is that underground fires can be stopped in their early stages if one can find the traces of carbon monoxide in the atmosphere coming along the roadway. Fires are sealed off by blocking the roadways of the area affected. The only way of finding out what is taking place behind the seals is by taking samples through them and determining the gas and monoxide, and when you have had the experience of the matter you can tell what is happening behind the seal several hundred yards from where they take the samples, whether it has died down, etc.

'Other problems include the use of light alloys, which are very slowly climbing their way into the mining industry, and the question of the strength of the materials we use. We also carry out examinations of failures which have resulted in accidents or breakages which have occurred, the controlled heat treatment of metals, problems concerning the wear and tear of drilling bits, and so on.

'A further problem which concerns us is the question of the amount of dust in the atmosphere in the pits. Silicosis is a disease which affects the lungs and is caused by the dust in the atmosphere. In South Wales, where it is more prevalent, the loss of man-power alone and the threatened loss of life resulting from this disease is a heavy drain on the industry. It is a joint problem with the medical as well as the chemical and physical sides. We are attempting to cut down the disease by the use of water from the ground, like spraying the coal as it is being cut, spraying before it is loaded, spraying the roadway free from dust until it is fairly hard.

'One method of dealing with this dust problem is to bore holes in the coal and force water into them so that the dust does not rise. Unfortunately there are few seams that can be treated in that way. You can only find out whether they are subject to treatment by carrying out tests down the pit. In addition to that work, we are carrying out through the area laboratories a routine survey of the dust conditions in the individual pits. We have our survey laboratory at Chester and the work carried out there is concerned with seams as they are in the pit.'

Finally Mr. Simpkin came to the reception by the industry of the scientist in the North Western Division. 'We feel we are ahead of most of the other divisions. . . . It has been a matter of gradual infiltration. The mining industry was one of individualists. Mining communities were isolated and rather out of contact with their fellows. But the coal industry is now taking full advantage of the strides made by science in the past 20 years. The scientist has got to get to know the industry, to know what the problems are and to be able to talk in the language of the mining engineer. He can assist the industry very considerably. In this Division we have always had willing co-operation from other departments. Our only complaint is that they sometimes send us problems expecting us to produce the answer very quickly like the magician producing the rabbit out of the hat.'

UNITED STATES COKE OUTPUT

PRELIMINARY figures received by the Bureau of Mines from coke producers indicate that production of coke in the United States in 1952 dropped by 14% to 68,232,650 net tons. The strike in the iron and steel industry caused virtually all of the furnace coke-oven plants and beehive plants to suspend operations during June and July. Merchant coke-oven plants continued to operate during the strike, but many of them curtailed their operations for lack of a market for coke. Consequently, the percentages of coke-oven capacity utilised during June and July were the lowest since October, 1949. Production of oven coke increased steadily following the settlement of the strike, the daily average output in December was the highest on record. Beehive coke production in the latter months of 1952 did not regain the level maintained during the first quarter, and the proportion of beehive coke to total coke production dropped from 9% in 1951 to 7% in 1952.

In spite of delays in the coke-oven expansion programme occasioned by work stoppages referred to above, about 947 new ovens with an annual coke capacity of 4,600,000 tons were completed in 1952. While a large part of this capacity was replacement of worn-out facilities, the industry gained about 1,500,000 tons of capacity. About 800,000 net tons of annual coke capacity was lost to natural gas in 1952. The total annual coke-oven capacity at the end of the year was estimated to be about 75,500,000 tons. Coke ovens scheduled for completion in 1953 are likely to exceed the number completed in 1952, but the eventual net gain in coke capacity is problematical because the number and capacity of obsolete and deteriorated ovens that will be taken out of production is not known.

Last year's consumption pattern for coke showed only slight changes from that of 1951, with more than 90% of the total coke production utilised for metallurgical purposes. The proportions of coke used for manufacturing gas and for residential heating continued to decline as more natural gas and fuel oil became available in the eastern part of the U.S. Exports of coke, as reported by the producing companies, decreased by 34% from the 1951 total and represented less than 1% of the total output.

Integration and the Scope for Development

By T. W. JACKSON, M.Inst.Gas E.,

Sub-Divisional Manager, Taunton, South Western Gas Board.

From a paper presented to the South Western Section of the Institution of Gas Engineers, Cheltenham, March 18, 1953

THE Southern Division of the South Western Gas Board covers 4,700 sq. miles. Its very nature, with its widely dispersed towns and villages and its densest centres of population situated on the coastal belt, called for an early policy in regard to gas supply. Economy, efficiency, and the maximum provision of gas supplies were considerations which ultimately determined the policy of centralised manufacture and high pressure distribution.

At vesting date there were 74 manufacturing units in the division, of which 42 had an annual output of less than 50 mill. cu. ft. Many of the plants were in a deplorable condition and were working most inefficiently, with a resultant high cost of gas made. A general plan was evolved which would effect a reduction of manufacturing stations from 74 to 14, and entailed the ultimate provision of more than 500 miles of high pressure main. The development of such an extensive plan will obviously be spread over a number of years and priority will be given to those projects which will show immediate economic and practical advantages.

Generally, the high pressure distribution systems will be developed around the larger works in each sub-division, and where it is economic to do so advantage will be taken of surplus manufacturing capacity at existing major production centres by the interlinking of high pressure systems and the transference of gas between sub-divisions and divisions; this will also enable certain plants to operate under base-load conditions with a resultant reduction in manufacturing costs.

Integration

The first essential in any plan for the bulk supply of gas is the determination of the design load, and this entails an enormous amount of detailed survey work in order to arrive at a reasoned estimate of future requirements. Some of the factors to be taken into consideration in assessing the future load are:—

(i) Number and type of existing consumers. Consumption per consumer, and development of consumption per consumer with relation to improved sales and service facilities, including improved gas supplies. A target consumption per consumer should be assessed.

(ii) The likely industrial, commercial, and domestic development and movement of population. Much useful information in this connection can be obtained from town and country planning officers and local government officials.

(iii) Number of connectable properties within the existing gas supply area.

(iv) Number of connectable properties on route of main.

(v) Number of potential consumers in villages and hamlets within one mile of trunk mains.

Having arrived at the number of potential consumers, an estimation of the number of consumers who will be connected and the consumption per consumer must be determined. Regard here must be had to availability of other services and type of property, etc. From past experience it has been found that between 50% and 70% of the potential consumers in these outlying places can be converted to gas users.

It is considered that 20 years is the maximum period over which forecasts can be made as very little useful information regarding development beyond that time can be obtained from local authorities, or industrial and commercial concerns. The life of cast iron mains is at least three, or possibly four, times this period, so that it is necessary for the designed distribution system to have some degree of flexibility, and to a certain extent this is provided for by the increase of initial pressures, but this factor has both physical and economical limits.

The various systems have been designed so that immediate future loads can be catered for with initial pressures of 10-15 lb. per sq. in., and the future estimated loads with pressures not exceeding 25 lb. per sq. in. The calculation of mains sizes must be related to operating pressures to determine the most economic size of main.

A High Load Factor

The importance of maintaining a high load factor in a distribution system is well appreciated. It is, however, inevitable in a predominantly rural area that supplies are taken directly off the high pressure feeder main; in fact, every consideration has been given to routing the mains to supply the maximum number of consumers en route. It is therefore essential to normalise this peak loading effect by adjustment to the volumetric intake to holder stations, making full use of all the available storage capacity. The latter can be ensured by the installation of automatically-operated low powered boosters on the holder outlet, which will provide adequate pressures on the inlet of the station governors.

Pressure troubles at peak loads on outlying points of low pressure districts are common throughout the area. Assistance can be given from the high pressure grid to supplement the supply at such points, but this assistance must be controlled. Where it is considered desirable to feed the extremity of an existing supply area to supplement the feed, and/or pick up hamlets or villages on the route of a branch feeder main supplying a holder station, a volumetric governor can be installed at a convenient point to supply the existing system and/or to pick up new consumers. The volumetric governor will then be adjusted to give the constant flow which is necessary to feed adequately and safely the holder station, at the same time giving a controlled outlet pressure—for example, 20 in. to 30 in. W.G. as considered necessary. By this method the consumers situated on the extremities of the existing supplies are given an adequate pressure on peak load and any new consumers are supplied from the same system through low pressure service regulators, while all the time keeping the grid main on base-load due to constant flows through the volumetric governor.

The control of the input to outlying holder stations must be essentially the responsibility of an official at the central manufacturing station, where a complete picture of the varying

demands over the whole system is maintained. Individual control, or 'help yourself' methods, at holder stations would upset the balance of flows from the central station; this might result in serious shortages at other holder stations and would increase the pumping costs. Central control does not necessarily entail a remote control system, but can be effected by direct communication to outlying stations, provided the individual operatives are strictly disciplined to the system. The facilities offered for the remote control of volumetric and ancillary equipment are comprehensive, but the economics of such installations must be carefully examined. It is estimated that the installation of remote control apparatus at a holder station, to provide for the remote indication of inlet pressure and low pressure alarm, flow input, holder stock with high and low level alarms, station governor inlet pressure, booster 'stopped or running,' electricity failure alarm, and the remote control of the volumetric governor and booster, would cost £2,500 to £3,000, depending on the number of holders to be supplied. Additional to this would be the telephone line rental at £10 per mile per annum—this latter facility would be required in any case. Generally, it would seem that if the full-time services of an operator can be dispensed with, the installation of remote control equipment, with all its advantages, can be justified economically. This, however, must not be taken as a rule, and each case must be considered on its merits.

Economic Considerations

The justification for a bulk supply is largely dependent on the economic advantages which will accrue; a scheme which shows that gas can be supplied in bulk into the holder of a works cheaper than the existing costs of manufacturing gas at that works would be economic, but when considering this factor the advantages of bulk supply gas from major manufacturing stations must be taken into account. An ample supply of clean gas of constant quality may discount immediate slight increases in cost at some smaller stations.

Charges which must be set against the gross differential cost into holder of manufacturing stations and stations to be supplied include the capital charges on the mains and ancillary equipment, pumping costs, maintenance and coke haulage costs. The annual charges on cast iron mains are made up of 4% interest and 2.22% depreciation. The cost of pumping will obviously depend on the type of drive and cost of steam, oil, or electricity. The coke haulage factor is one which is not always given the attention that it merits.

Differential Cost into Holder

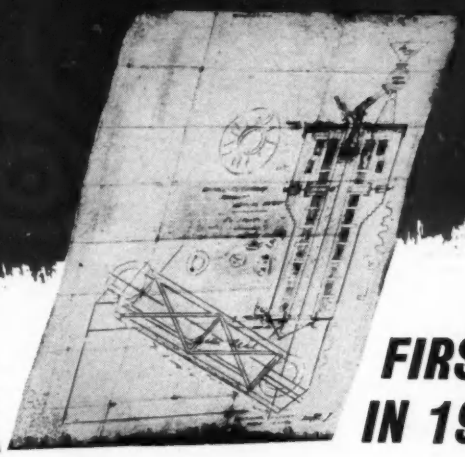
The relationship between capital expenditure on mains and differential cost into holder has been plotted on a graph, which also indicates the average cost of laying various size mains. For a works A, supplying to station B 10 miles away 150 mill. cu.ft. per annum through a 6 in. main, the cost of the main represents a net differential cost into holder of 0.75d. per therm; to this must be added the compression cost, 0.32d. per therm, the annual charges on ancillary plant, say, 0.05d. per therm, and coke haulage, 0.33d. per therm, totalling 1.45d. per therm. The net effect will be the difference between this figure and the existing differential cost of gas into holder, and the financial advantage will obviously increase as the output of station B increases. This is the simplest form of example—the economics of a group scheme become more involved, but the same consideration must be given to the capital charges on mains and ancillary plant, pumping costs, and coke haulage and maintenance.

This map of the Southern Division of the South Western area shows the ultimate manufacturing stations and the proposed high pressure distribution system.

A clearer picture may be obtained by taking as an example a scheme which is not unrelated to one now being implemented in the division. A central manufacturing station is to supply seven smaller units, and the costs involved are as follows:—

Capital cost of mains and ancillary equipment	£217,500
Total charges on capital per annum	£18,230

The differential cost of gas into holder between the central station and the seven units varies from 3¼d. to 10¼d. per therm. The effect of this gross differential is calculated on the immediate future and future estimated consumptions for each unit and against this figure is offset the various charges thus:—

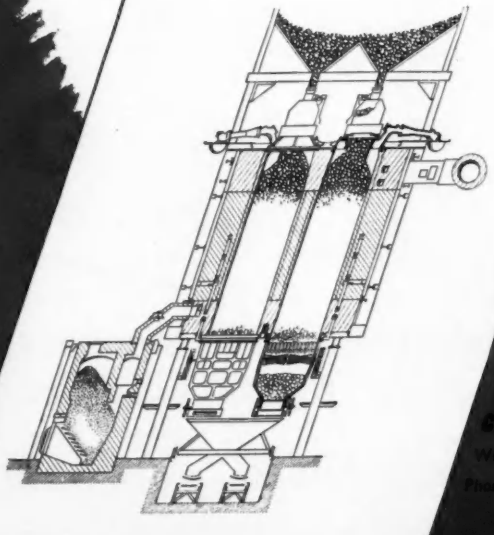


FIRST IN 1903

Fifty years ago the first W-D Continuous Vertical Retort was designed and built at Bournemouth.

To-day the gas industry carbonises more coal in continuous vertical retorts than in any other form of carbonising plant. In Great Britain alone there are some 5,000 W-D Continuous Vertical Retorts at work carbonising over 7 million tons of coal annually.

W-D



FOREMOST IN 1953

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reduce coke storing charges

Illustration shows Huwood Top-Belt Conveyor stacking coke at the Howdon Works of the Northern Gas Board.

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TELEGRAMS: HUWOOD, GATESHEAD — TELEPHONE: LOW FELL 76083 (6 LINES)

Industrial and Export Office: Hugh Wood & Co. Ltd., Dashwood House, 69 Old Broad St., London, E.C.2

TELEGRAMS: HUWOOD, AVE, LONDON — TELEPHONE: LONdon Wall 6631-2-3 (3 LINES)

SUMMARY OF COSTS OF BULK SUPPLY

Item	Immediate future	Ultimate
Therms per annum	1,517,551	3,640,970
Annual charges—		
Interest and depreciation	£18,230	£18,230
Cost of additional coke haulage at 0.58d./therm	£3,660	£8,800
Compression cost per therm	0.135d. = £850	0.286d. = £4,340
Total charges	£22,740	£31,370
Annual gross effect—		
Due to differential cost of gas into holder	£33,494	£89,130
Net effect—		
Saving	£10,745	£57,760
Pence per therm	1.7d.	3.82d.

Capital charges on new plant will be assessed on interest at normal rates on the capital outlay, together with depreciation related to the years of life of the various assets comprising the manufacturing plant based on the recommendations in the Evetts report. These charges must, to a large extent, be offset by the economies to be effected by increased efficiency of production and the additional load catered for by the new high pressure mains.

In addition, there is the question of the treatment to be applied to depreciation in respect of redundant assets which would result from shutting down plant at the seven units. It is understood that depreciation on vesting day assets is being written off over a period of 28 years and this depreciation on the redundant plant must continue to be borne. The question of expediting the depreciation on these obsolete plants is left aside from present considerations as being a matter of Board policy.

An example of the difficulties encountered in excavation through recrystallised limestone in laying the Buckfastleigh 10 in. main. Blasting was necessary in carrying out the work.

On the credit side account must also be taken of the greater capital charges which would be entailed if instead of the new centralised manufacturing plant the erection of new plant or extension of plant was carried out at the seven units.

In some respects it is unfortunate that the opportunity for extensive development of supplies coincides with a period of rising costs, but the inevitable must be accepted and every device must be employed to minimise the cost of projected work. Mainlaying in this division is as costly as, or more than, in any other area in the country, but by the process of competitive tendering on a rigid specification basis the best value is obtained.

An analysis of present-day costs of mainlaying by contract shows that for 4 in. and 6 in. mains, 60% of the total cost is for labour, 30% for materials, and 10% for reinstatement. As the mains sizes increase the material costs come closer to the labour costs. Comparable figures for 10 in. and 12 in. mains are 54% labour, 40% materials, and 6% reinstatement. These adverse labour costs are certainly contributory factors in favour of generous mains sizes.

Another example of the rocks which had to be shifted in the course of excavation from an old river bed near Ivybridge.

The routing of bulk supply mains calls for a close examination of the area concerned and it is not always the most direct route which will provide the greatest economic advantage. To reduce mainlaying and reinstatement costs and subsequent maintenance charges, wayleave rights should be purchased wherever practicable. It is important, however, to programme mainlaying through private land, and particularly agricultural land, so that undue damage to crops is avoided. It is often more expedient to excavate trenches by hand rather than by mechanical means, especially in bad weather or through narrow parcels of land.

Excavation in rock is a costly and undesirable procedure, but this encumbrance is unfortunately prevalent in mainlaying projects in this division. The following figures give some indication of the additional costs involved when rock is encountered.

Average rock charges as per Contract Schedules	Additional cost of excavation— Trench 18 in. wide. Depth of rock excavated 12 in.
Hard 95s. per cu. yd.	42s. 4d. per yd. of trench
Medium 45s. " " "	20s. 0d. " " " "
Soft 19s. " " "	8s. 5d. " " " "

These charges are representative of a number of quotations received from contractors in respect of various projects, but are by no means fixed charges. Quotations for excavation through hard rock have varied from 45s. to 170s. per cu. yd. This variation of cost is obviously related to the type of rock to be excavated. Sedimentary rocks that have not undergone metamorphism or recrystallisation split easily along their bedding planes, and 'joints' at right angles to the bedding plane usually make the excavation of these rocks a fairly easy matter. In igneous and metamorphic rocks there is no layering, and 'jointing' is most irregular and usually wide apart, which makes trench excavation a most laborious task.

All concerned with the laying of mains should have at least a nodding acquaintance with the local geological features—some knowledge of the type of ground to be encountered will often avoid many practical difficulties and save not a little money in the course of a mainlaying project. Much valuable information can be obtained from the geological maps, particularly in this part of the country where rock outcrops are so common. A map showing the soil and subsoil features would be more useful for our purpose, but unfortunately the mapping of the soils is only in its initial stages. Quite apart from the information which can be obtained from technical maps, etc., many useful deductions can be made by intelligent observations of the local scenery. Fields bounded by stone walls not only indicate that stone is plentiful in that area, but that most probably the soil is too thin and poor to support hedge bushes and it is likely that rock is very near to the surface. Rushes always mean underground water, while tall elms are a sign of deep fertile soil, strong oaks an indication of heavy clay, and beeches of chalk or limestone. Road and rail cuttings will show the probable formation of adjacent subterranean rocks, and old river beds will contain sizeable boulders.

Scope for Development

Intensive surveys are necessary before an estimation of future loads can be assessed. These surveys are individual and are confined to the area under review. Generally, for the three counties in the division, the main industry is agriculture. Other industries centre on consumer goods, while engineering and metal using industries are to be found in and around Taunton, Bridgwater, Chard, Plymouth, and Exeter, and in Cornwall mining for minerals and china clay is carried on to an increasing extent. The widespread hotel and catering industry is, of course, of great importance to the development of our industry in the west. It is not intended to indicate the methods by which increases in gas consumption can be brought about, but there is undoubtedly a great potential demand yet to be developed.

The Board's appliance trading policy, which provides for the sale of all domestic appliances at uniform prices, both for cash and hire purchase at inclusive terms free of any additional charge for fixing, or after sales service, forms a sound basis for sales development, and it is regrettable that this development has been retarded in the past year by restrictions in promotional advertising, and of hire purchase facilities, and also by the imposition of enhanced purchase tax on certain appliances; it is to be hoped that there will be some relaxation of these restrictive practices in the near future.

Ratio of Consumers

Relative figures on population and consumers in the subdivisions are set out below, and it will be seen that although there is only a slight trend to increase in population over the next 20 years, the estimated increase in consumers over that period is more than 31%. This estimation is made up not only of potential consumers to be connected to proposed extensions of supply and new housing estates, but also of many potential consumers within existing supply areas.

POPULATION AND CONSUMER STATISTICS

		Population	Consumers	Population per sq. mile	Consumers per sq. mile	Ratio consumers to population
Taunton ..	1953	169,110	35,528	296	62	1: 4.8
	1972	182,250	48,100	319	84	1: 3.8
North Devon..	1953	131,300	22,265	117	20	1: 5.8
	1972	133,990	26,600	120	24	1: 5.0
Exeter.. ..	1953	222,519	45,128	238	48	1: 4.9
	1972	233,650	58,650	249	62	1: 4.0
Torquay ..	1953	188,508	49,552	402	105	1: 3.8
	1972	198,400	61,800	421	131	1: 3.2
Plymouth ..	1953	301,663	83,601	351	97	1: 3.6
	1972	325,600	100,000	380	116	1: 3.3
South Cornwall	1953	253,900	31,981	333	42	1: 8.0
	1972	259,000	58,630	339	77	1: 4.4
TOTALS ..	1953	1,267,000	268,055	268	57	1: 4.7
	1972	1,332,890	353,780	282	75	1: 3.8

Survey results have shown that there are more than 200 villages comprising over 17,000 potential consumers adjacent to the proposed trunk main system. These connections will not be made without a great effort on the part of the sales personnel, and here it might be emphasised that all employees who come into contact with the consumer, or potential consumer, are virtually salesmen—the initial contact, whether it is made by the mainlayer, superintendent, or salesman, has a great bearing on the completion of a sale.

Investigations into supply conditions at various units have provided some enlightening figures which can only be regarded as encouraging as far as future sales are concerned. No doubt there were reasons for the previous lack of development in the smaller units, but inadequacy of supply was the outstanding feature. This resulted in a loss of consumers, who transferred to electricity or solid fuel for cooking and water heating because sufficient gas was not available. A typical instance of these conditions was found at Wadebridge—a town comprising some 900 dwellings within the gas supply area. Of these premises only 400 were connected to the gas mains and the consumption of 50% of the consumers was less than 20 therms per quarter. This example is one of many which could be quoted from every sub-division. Experience has shown that wherever improvements of supply have been made, output has immediately increased. At one small unit, where certain mains and service improvements of supply were carried out, the output went up by 60% within two months.

There is a vast amount of work yet to be done in putting to rights the existing supplies, and installing the new high pressure systems, and while it is particularly gratifying to note the developing interest of juniors in distribution practice, this interest is not as widespread as it might be, and it is hoped that every effort will be made to recruit young technicians into the distribution side of the industry.

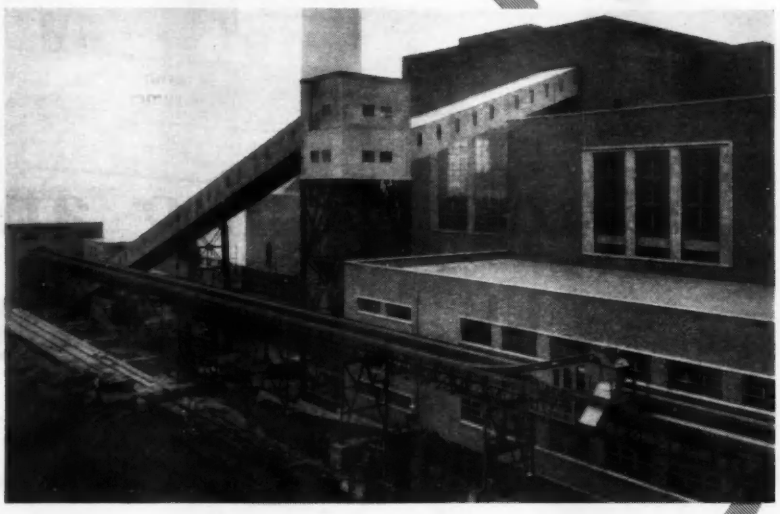
DISCUSSION

Mr. J. W. Denton, G.M., Chairman of the Section, said they were at present faced with two problems, the necessity to realise that most of their capital was in the form of mains in the ground, and the fact that their manufacturing plant had either to be renewed in 20 years or in many cases in smaller works it was obsolete. Their real assets were in the ground and they must employ every possible device to use those assets to the fullest advantage. They must get the maximum possible gas through the mains, whether in one direction or the other, for the author had shown in his paper how a low pressure system could be utilised to contribute to the integration of an area. The cost of laying mains nowadays was very high, but it was probable that the people who laid mains 40 to 50 years ago also found the price very high in their day. The relationship between the cost of mains and the cost of other commodities was similar in those days, and he suggested therefore that they should not squeal excessively about the cost of extending mains today and say they could not afford to do the work. History had shown that people with courage should go forward with reasonable capital expenditure. The people of today were reaping the benefits of wise expenditure in past years, and those who were serving

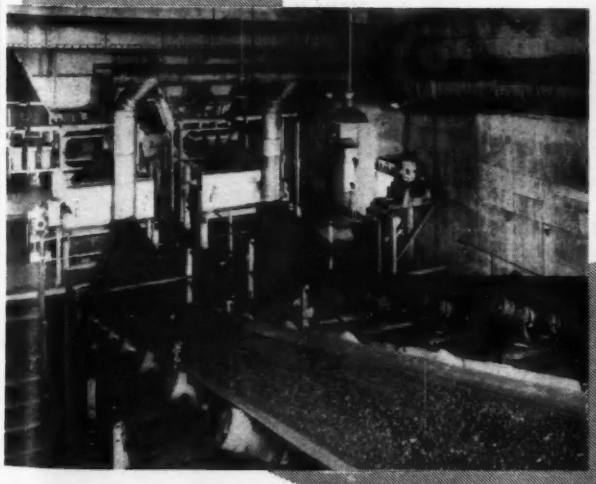
(*Continued on p. 47*)

INCALCULABLE

THE VOLUME OF COAL, COKE & OXIDE CARRIED BY BELT CONVEYORS INSTALLED BY DEMPSTERS OF ELLAND



Coal Handling, Storing and Reclaiming Plant, having a capacity of 250 tons per hour. One of many large plants recently completed by us.



View of feeder pit showing magnetic separators, dust extraction plant, etc.

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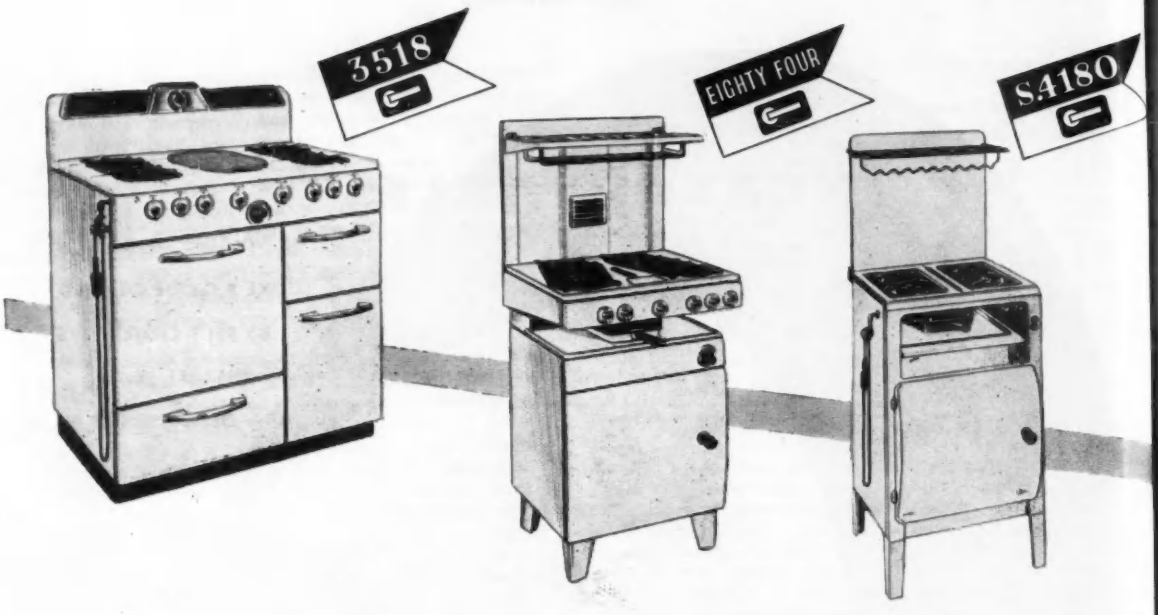

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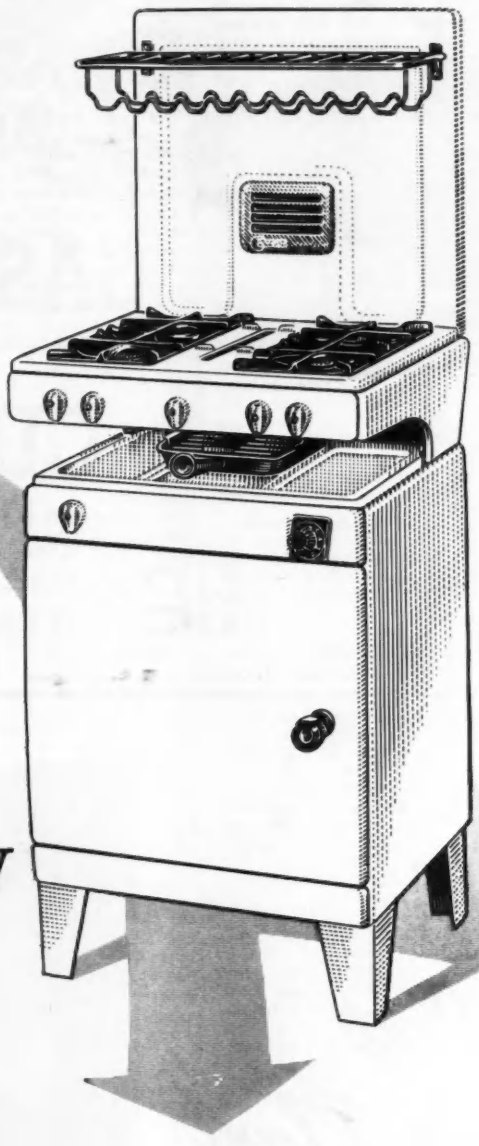

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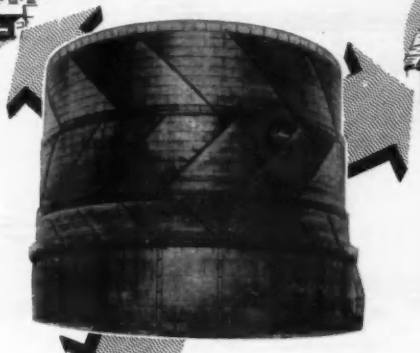

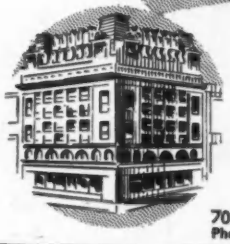

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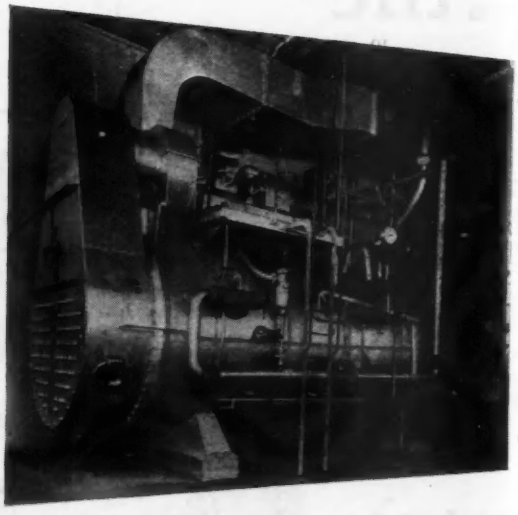
SPENCER-BONECOURT

Waste Heat Recovery Plant



The illustration shows one of the Six Waste Heat Boilers installed at the Howdon-on-Tyne Gasworks—Northern Gas Board. Photograph by courtesy of Messrs. Gas Chambers & Coke Ovens Ltd.

SPENCER-BONECOURT LIMITED

14, FETTER LANE - LONDON - E.C.4

Telephone: CENtral 0481/2 Telegrams: "Bonecourt, Fleet, London."

the industry today should be prepared to make similar provision for the people of the future. He commended a close study of Mr. Jackson's references to geology. To some it might sound silly to stress the difficulties associated with rocks, but quite a good deal of money could be saved by making careful preparations.

Drilling Through Rock

Mr. T. L. Tallentire (South Cornwall) said the question of the cost of drilling through rock was coupled with the question of maximum pressure, and he was surprised that Mr. Jackson had referred early in his paper to future estimated loads with pressures not exceeding 25 lb. per sq. in. The question of main-laying costs should have a bearing on maximum pressure. In an area like Cornwall with a high granite content in the ground it might be more economical to push the pressure up and keep the mains sizes down. Turning to volumetric governors, he thought it was a pity the word 'volumetric' had come into such common use. The governor, as a governor, exerted a direct pressure. Whether they used a diaphragm or other type of governor the operation was to control various pressures at some stage, and he suggested they should drop the word 'volumetric' altogether, and talk about governors.

He welcomed the author's emphasis on clean gas of constant quality. There was a tendency in considering the cost of integration to look only at the exact cost of gas into holder and compare it with the cost delivered into holder from an integration scheme. They were apt to overlook the fact that they were not really comparing like with like, and that an ample supply of clean gas of constant quality might discount immediate slight increases in cost at some smaller stations. The table which Mr. Jackson had given of the ratio of consumers to population would be of value to those who were operating integration schemes in scattered areas. It showed that in the case of South Cornwall the present ratio was 1:8, whereas under a system of integration it might be improved to 1:4.4. That was the only way to develop the gas industry in an area where there were no large centres of consumer population.

Mr. T. W. Clapham (Bristol) said he was of the opinion that the cost of mainlaying would in itself decide the question of using higher pressures. He was very interested in Mr. Jackson's references to compression costs. He had interested himself for many years in that subject, and he thought Mr. Jackson was to be congratulated on putting down in simple form a scale of costs for compression.

Mr. A. G. Holtam (Cheltenham) said the question of the volumetric governor had been well discussed in the past. Not very many years ago they would have had a series of valves, one to control pressure, another volume, another to control inlet pressure, and so on, but today many functions were performed by a single device. Whether they deprecated the author's emphasis on volumetric control or not, the fact was that that type of governor could be put in and all the other operations could be added at very little cost. He could not see how they could avoid the word 'volumetric' when dealing with governing.

Over-Instrumentation

Mr. P. J. Whitehead (Swindon) spoke of what he regarded as the danger of over-instrumentation. He had recently looked round a new works that was 'plastered' with instrument panels. In many works they could see instruments that they did not need. He said that at the risk of being considered old-fashioned. It was not only a question of spending money on the instruments; it was also a matter of the amount of labour required to keep the instruments working properly. In their own system at Swindon they had had one volumetric governor put in for a special purpose—it was necessary because it controlled the gas between Swindon and Bath.

Mr. J. E. Wilkes (Torquay) commented on the author's statement that at vesting date 'many of the plants were in a deplorable condition and were working most inefficiently, with a resultant high cost of gas made,' and suggested that before they considered the economics of a bulk supply they should consider what could be done to improve existing works with the expenditure of very little money. Presumably he had taken that aspect into account, but he had not mentioned it.

Mr. Jackson, in a brief reply to the discussion, welcomed the Chairman's remarks on the cost of taking supplies to the outlying areas. Some villages were not exactly on the route of the mains, and the question of the cost of taking supplies to them was common to practically every group system wherever it was put in. To justify the cost they must go out for the maximum supply of gas. Consumers were expecting them to do that, and they themselves must expect to have to meet a capital charge on the initial installations. He agreed with Mr. Tallentire that the type of granite found in Cornwall was the most difficult type with which the gas industry had to deal. So far as pressures were concerned he was quite prepared to meet with criticism of the 25 lb. maximum. If he had suggested 60 lb. he was sure somebody would have said 'Why not 100 lb.' He wished to point out that the cost of laying a main consisted mostly of labour, and he suggested that when a main was being put in it should be of adequate size to cover future development. If it was a choice between 4 in. and 6 in. he would suggest 6 in. as being preferable. Flexibility of supply could be afforded by increase in pressure, and he would not say that 25 lb. was the ultimate limit. There were systems in the area working at more than that pressure. They must not lose sight of the fact that in the majority of cases in the South Western area integration schemes were starting from scratch, and they must hand on to their successors something that was going to last more than 20 years.

The volumetric governor was not a new-fangled device. It had been in use since long before the war, and had been employed in the West Yorksire grid with very satisfactory results. It was a device which accomplished a series of jobs, all grouped into one piece of equipment. The essence of the volumetric governor was to enable a whole system to be controlled, and not one individual and isolated item. He advocated the volumetric governor not merely because it was a piece of equipment with many applications but because it was essential on a centralised grid system.

Regarding compression costs he realised that the information he had given in his paper was inadequate; its purpose was to show how costs varied as they increased pressures and volumes. He was sorry that the volumetric governor seemed to have taken precedence in the discussion, because it was just another piece of equipment. It was a fact that whereas a separate device for regulating high pressure might cost £8 or more, the same objective could be achieved with the volumetric governor for an outlay of a few shillings.

He was sorry that Mr. Wilkes had felt he had referred in slighting terms to the smaller undertakings when he spoke of some of them as having been in a deplorable condition and working inefficiently. It was a fact that some of the smaller undertakings were inefficient on the ground of the cost of gas into holder. It was such works that chiefly justified integration schemes. Surely the criterion as to whether a works should be closed down was the capital invested and the cost of producing gas.

COAL OUTPUT UP

THE TOTAL SALEABLE OUTPUT of coal during the week ended March 21, was 4,631,100 tons, according to Ministry of Fuel and Power provisional statistics issued on March 24. This was an increase of 2,000 tons compared with the week ended March 14. The total output for the week ended March 21 showed a decrease of 3,600 tons compared with that for the corresponding week last year. For the year so far, however, the total production of 50,583,300 tons is 33,600 tons more than in the corresponding period last year.

INDUSTRIAL RELATIONS

A RESIDENTIAL STUDY COURSE on 'Industrial Relations' will be held at Skelmorlie Hydro Hotel, Skelmorlie, near Wemyss Bay (Ayrshire), from April 13 to 18. The course is sponsored by the Institute of Personnel Management and those wishing to attend must write to the Institute's Courses Secretary, 8, Hill Street, London, W.1. A similar course is being planned on 'Education and Training,' to be held at Droitwich from May 10 to 15, and on 'Staff Management in Offices,' to be held in London from June 7 to 12.

BAKER PERKINS, LTD., manufacturing engineers and iron, steel, and brass founders, of Hebburn-on-Tyne and Peterborough, are to distribute £161,637 to 2,728 employees under a profit-sharing scheme introduced by the firm in 1947. The amount similarly allocated for 1951 was £135,096, and this year's total is the highest since the scheme began. Payments to each employee depend upon the length of service and gross wage or salary.

COMPANY MEETING

Radiation Limited

Annual General Meeting: Speech of Harold Hartley, C.B.E., D.Sc. (Chairman)

AT the annual general meeting of Radiation Ltd., held at the Incorporated Accountants' Hall, London, W.C.2, on Tuesday, March 31, 1953, the Chairman, Dr. Harold Hartley, C.B.E., said:

Directors' Report

The accounts comprise the consolidated profit and loss account and the consolidated balance sheet of the Radiation Group and also the balance sheet of Radiation Ltd., as at December 31, 1952.

The consolidated profit and loss account shows that the trading profit of the Group for the year 1952 was £1,124,717 as compared with £1,537,649 for the preceding year, a decrease of £412,932. After adding income from investments and other income and providing for depreciation, directors' remuneration, audit fees, and pension payments, the profit before taxation was £818,480, a decrease of £444,286 compared with the preceding year.

After reserving £457,776 for taxation but crediting the account with £6,363 provided in previous years in excess of liability, there remains a net profit for the Radiation Group of £367,067 compared with £533,758 in 1951.

The Board has decided to leave the year's profits largely in the hands of the subsidiary companies and only £46,655 has been taken by Radiation Ltd. This, with the amount of £166,358 brought forward from 1951, gives a total of £213,013 available to Radiation Ltd.

The interim dividends already paid and the final dividends which are recommended for payment, will absorb £212,431, leaving a balance of £582 to be carried forward in the accounts of Radiation Ltd., at December 31, 1952.

The aggregate balance standing to the credit of the profit and loss accounts of the subsidiary companies, after including the undistributed profits for the year 1952 of £320,412, totals £1,014,863, which the Directors recommend be carried forward to next year.

From the consolidated balance sheet it will be seen that the book value of the fixed assets is £2,174,137 an increase of £9,810 on the comparative figures for 1951. If the amount of £257,787 which has been written off for depreciation is added to the increase in the fixed assets, the resulting total of £267,597 represents the expenditure during 1952 on new buildings and plant.

The current assets of the Group, including stock, debtors, investments, and cash, total £7,706,188 and exceed the current liabilities and provisions, including the proposed final dividend payment of £135,911, by no less a sum than £5,924,505. This latter figure may be compared with the excess of £5,772,955 at the end of the preceding year. The stock of the group, which comprises raw materials, work-in-progress and finished goods, is assessed at December 31, 1952, at £3,054,865, an increase of £229,699 over the value attributed to the stock held at December 31, 1951. This increase is largely the outcome of a change made in the basis of stock valuation. The effect of this adjustment on the profits of the year under review has been quite small—under £19,000—but it has given rise to a surplus which is attributable to previous years. This surplus has been carried to reserve out of which provision has been made to cover the additional liability to taxation which may consequently arise.

Trade Conditions

During the first half of the year under review the overall demand for the products of the Group was well maintained. In the first quarter the output of our production centres was absorbed, but there were signs of a pending recession. This expectation was supported by the experience of the retail trades which had begun to feel the impact of the credit restrictions, and were directly affected by the public's reaction following their appreciation of the state of the nation's finances.

It was early in March, also, that the Australian Government imposed the embargo on imports; some weeks later similar action was taken by the New Zealand Government. This temporary loss of Australasian trade is regrettable, adding as it does to the difficulties that have developed in the home market. It was, however, not until the latter half of the year that the decrease in demand created real problems for some of our production centres. Up to the end of June the gross turnover was only about 1% less than for the first half of the previous year. The Group turnover for the whole of the year 1952 was about 7% less than that for 1951. The decrease in demand affected the production of the more expensive appliances, but, on the other hand, the sales of our Low-Cost gas cooker were even greater than in the previous year.

Towards the end of 1952 there were signs of an increase in consumer demand, but this did not reach the manufacturers to the full extent. The public's purchasing power is, however, still healthy and an increase in demand will result, although in certain spheres this may not be as great as in 1951.

Costs and Prices

Despite the fact that the demand for our Low-Cost gas cooker was maintained, the profit margin on the sales fell because of further increases in charges imposed, over which we have no control. Although our profits have suffered, we did not increase the prices of our gas appliances. Since February, 1947, we have increased the price of gas cookers once only, and that was in October, 1951, when the increase was approximately 7%. Operating under conditions of free competition we have not felt it expedient to pass on to the consumer all increases in costs; the effects of wage increases and increased charges for materials and services have been countered in the past by improved methods of working, and, in addition, we are spreading our interests. It had been our endeavour to hold the position until material prices declined. Unfortunately, in February, 1953, the coal industry imposed another price increase; coal is now three times as dear in this country as it was in 1939. This was followed immediately by a higher price demand by the steel producers and suggestions that further increases in gas and electricity charges would have to be made in due course—and so we may have started on another inflationary spiral. The charges now made to help meet the cost of government by way of income tax, profits tax, and purchase tax, are also burdensome. It may thus be difficult in future for us to sell at the favourable prices of the last few years.

Gas Cookers

One noticeable result of the change in trading conditions has been an increase in the number of new domestic appliances which have been made available by the various manufacturers. Last year we completed the tooling of two new gas cookers which were to have been launched in 1953. Each is a leader in its class and foreshadows a general change in the design of gas appliances.

The first is a range, which we have called the '3518.' This incorporates grilling and hotplate features not previously available to the general public. The large griller housed in a separate chamber will enable the housewife to expand her cooking practice. Not only can the usual grilling operations be performed—such as the making of toast and the preparation of bacon, chops and steaks—but the grilling of a much wider range of foods, extending over a period which may be as long as two hours, can be done with the certainty of satisfaction. Then again, there is a solid plate on the hotplate which makes possible the preparation of dishes which otherwise cannot be done conveniently with the ordinary gas cooker.

The second—a high grade cooker of the upright type—is called the 'Eighty-four.' In this are embodied new principles of design which make available to the housewife a larger hotplate space, easier to keep clean, and provide freedom of access to the parts in a way not previously possible. For many years

now the box-like shape has characterised most gas cookers and the size of the hotplate has been determined often by the overall size of the oven, although it would have been advantageous to have a larger hotplate as is now made available again.

In addition, earlier this month we launched a third cooker—which is called the 'Seventy-five'; this, also, is of the upright type. It is similar in design to the 'Eighty-four,' but comes in a lower price category and will satisfy the need for a really new gas cooker obtainable at a price well within the means of a large proportion of the community.

These cookers have been exceptionally well received, not only by the gas boards but by the public, both because of the physical advantages offered and the intrinsic merit of the designs.

Gas Space Heaters

The demand for gas space heaters in 1952 was some 10% less than in the previous year. This was perhaps partly due to the effect of the growing popularity of the low-priced solid fuel all-night burning grate, which is free from purchase tax and can be sold and fitted relatively cheaply. When burning coal, the efficiency of the low-cost open fire is not significantly greater than that of the traditional fret and stool bottom grate, although being more controllable and permitting of all-night burning it offers advantages which appeal to the consumer.

Gas Water Heaters

It is in the gas water heater field that the gas appliance manufacturer has suffered most seriously, although, judging from the published statistics, the decrease in demand for our products has been less than that suffered by the trade as a whole. Here, undoubtedly, the effect of the modification of hire purchase facilities and the ban on promotional publicity, added to a restrictive purchase tax, have had a marked effect. The high charges made for installation in certain cases have also had an influence. The service which can be obtained from the Radiation gas-heated circulators, with their negligible maintenance costs, is so satisfying and the value of the load to the gas industry would be so high, that it might pay to make the hot-water service more attractive financially to the potential user.

Solid Fuel

During 1952 the sales of our solid fuel appliances were somewhat in excess of those effected in 1951. The maintenance of this demand is attributable not only to official encouragement to the public to use better apparatus, but in part to the fact that the selling is done through a large number of channels throughout the country. Although our customers must also have been subjected to and influenced by the burdens imposed by the Chancellor of the Exchequer, and have been compelled to reduce their financial commitments, the impact of the Governmental policy on us has not proved so abrupt in this field as with the nationalised industries, which operate through a relatively small number of boards. On the other hand, in the application of solid fuel in the domestic sphere, there is need for greater co-ordination of effort. Considerable savings in manufacturing costs could be effected were there such limitations of the types of apparatus demanded as would permit of the application of specialisation in production. There is some evidence that economic conditions are compelling some sections of the public to make greater use of solid fuel; in addition, in the domestic sphere technical developments may greatly influence the relative merits from the national standpoint of the alternative methods of using fuel.

Export

In last year's report reference was made to the large increase in exports effected during the final quarter of 1951. This increased rate of delivery was exceeded to a marked degree in the first three months of 1952. Then there followed the import restrictions imposed by the Australian, New Zealand and South African Governments, and we were faced with the difficult job of making good the loss of sales in these three important countries by extending our trade in other markets of the world, in many of which there is also imposed some form of trade restriction.

It is gratifying to report that the whole of the loss of sales suffered in the three principal Commonwealth markets was made good before the end of the year by increased sales to other markets. Ultimately there was recorded an overall increase of 5%. It is hoped that our foothold in the new markets will be maintained, and when economic stability is again attained in the Dominions, it will be possible to record a marked and permanent increase in our export trade.

As mentioned last year, much depends on the continued ability of the Dominions and foreign Governments to accept exports from this country. The problems involved require solution by the Governments concerned, and until the channels of trade are free, individual manufacturers and exporters and importers will be unable to give of their best.

Research and Development

Mr. W. D. King has been appointed Deputy Chairman and Technical Director, and we anticipate that under his direction our Research and Development Section will function even more effectively than in the past.

Reference has been made to the three new gas cookers launched since our last meeting. These are further products of the work of our development teams and design unit. In the course of the year substantial progress has been made in dealing with one of the most difficult general problems associated with the use of gas appliances—*i.e.*, the disposal of products of combustion. Important principles have been established in the design of draught diverters and terminals, while other more novel methods of rendering appliance performance independent of chimney conditions are also under active examination. Other investigations have been done in the study of cooking, space-heating and water-heating problems. The application of work on the various types of apparatus in which we are interested will result in technical advances from which the fuel industries as well as the Company will benefit.

Fuel Economy and Fireplaces

Despite the publicity given in the post-war period to the use of fuel, there is still need for more effective action in the domestic sphere. Each year now up to 300,000 houses are to be erected and practically all may be fitted with one or more built-in fires. Each house so built increases the burden of the 'fuel usage' problem. Were local authorities and others to abandon the practice of fitting built-in fires and instead provide only open fireplace recesses in which could be placed self-contained appliances, the resulting advantages would be notable.

The efficiency of fuel utilisation would be increased in many cases by 25% or more. The design of apparatus would be improved rapidly because of the greater scope provided for technicians, following the removal of the unnecessary physical limitations which are so restrictive today. The abolition of domestic smoke at an early date, even when burning bituminous coal, which fuel carries the bulk of the domestic heating load, would become practicable and new building sites could be made smokeless zones automatically. It has been demonstrated already in numbers of houses built since the war that in the domestic sphere bituminous coal can be burnt smokelessly and with high efficiency for the warming of the house and the provision of hot water.

The present demand for our goods is somewhat higher than it has been during the last three months, but we shall require more time for complete readjustment of our activities. In this work we shall have the full support of the members of the organisation, who have helped us so much in the past: this help has been especially valuable during the last twelve months. It is the wish of the Directors and I am sure it will be yours as representing the stockholders, that this be acknowledged gratefully.

The report and accounts were adopted and the dividends, as recommended, were approved.

COLONIAL GAS ASSOCIATION

A cable has been received from Melbourne stating that, at a recent meeting of the Directors of the Colonial Gas Association, interim dividends were declared for the half-year ended December 31, 1952, at the rate of 8% per annum (Australian currency), less tax, on the preference shares, and at the rate of 7% per annum (Australian currency), less tax, on the ordinary shares, both less deduction for rate of exchange. For shareholders on the English register it will not be possible to pay the dividend until early in May, as the rate of exchange cannot be determined until the date of payment of the dividend in Australia. The dividend due to shareholders on the English register will be payable in London, but where instructions to that effect have already been given to the Association, the dividends due to such shareholders will be paid in Australia to a bank there on their behalf, or to an accredited agent. It is not necessary to renew these instructions.

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North Eastern Prices Raised

THE North Eastern Gas Board is to increase its gas charges from April 1 to meet rises in wages, haulage and freightage, and the recent increase in the price of coal. The increase will amount to an average of 10½% and is expected to yield about £1 mill. in a full year. The new charges were approved by the North Eastern Gas Consultative Council at its meeting in Leeds on March 23.

Dr. R. S. Edwards, Chairman of the Board, said that at the end of the Board's financial year on March 31 the accounts would be almost in a state of balance, instead of there being an estimated surplus of £350,000.

In the coming year the abolition of special tariffs would bring in an extra £250,000, but there were major items which would offset this increase.

There had been a big drop in prices for tar products. The Board would have to face a full year of higher wages, salaries and pensions amounting to £151,000; the recent increase in coal would cost £320,000; the depreciation charge had risen by £180,000 a year, and interest charges by £70,000; and the higher rates meant an increase of £40,000.

Taking all these items into account the Board needed an extra £600,000 merely to balance its accounts for the coming year.

On top of that they had a statutory duty to raise a reserve fund to meet any future liabilities and it was therefore proposed to increase charges to yield £1 mill. in a full year or 10.5%.

They would get £150,000 less than the full million this year.

Consumer resistance had been taken into account and it was estimated that if sales of gas dropped by 1% there would be a decrease in revenue of £50,000.

The Board thus expected to have a surplus of £200,000 at the end of the year provided there were no further increases in costs.

Dr. Edwards said charges in the Board's area would be the fourth cheapest in the country and he asked the Council to support the Board in the very difficult step it had had to take.

Alderman J. H. Whitaker (Todmorden) said that although he had no quarrel with the Board for seeking an increase he thought the differential between the various classes of consumers was too wide, and felt there should be uniformity in tariffs instead of three zones.

Other members said the Board's statement was 'honest, straightforward, and businesslike.' They could not get away from such things as capital charges and depreciation, and it was sound business that there should be a reserve fund. The plea for uniformity in tariffs ignored high costs of distribution and other incidental expenses. The Council and other consumer bodies were almost totally impotent in the matter of rising prices.

Dr. Edwards, replying, said on the question of uniformity of tariffs, that if the present standardised tariff was going to be altered it should be done at the end of two years' trial and not before. While the average charges for gas in the area had gone up by 30% since vesting day some consumers were getting gas cheaper than before.

When prices were last increased just over a year ago it was hoped to be able to hold the price for the next two years, and at the end of that time possibly effect some slight reductions. Unfortunately, matters had not turned out that way and the Board had continued to feel the 'backwash' of the inflationary spiral.

News in Brief

Benzole and Allied Products.—The Minister of Fuel and Power has made an order freeing from control, from April 1, benzole, toluole, xylole and coal-tar naphthas. The order is the Benzole and Allied Products (Control) (Revocation) Order, 1953 (S.I., 1953, No. 444).

Budapest City Council will this year add 27 miles each to its gas and water pipelines. It is planned to make 141 mill. cu.ft. more gas this year and to fit 12,000 more gas appliances than last year. There will be an investment of £150,000 in improving the quality of gas. Water production is to be stepped up by 12 mill. cu. metres.

The Minister of Supply, Mr. Duncan Sandys, has made an order ending the statutory control of maximum prices for steel bolts, nuts, screws, and rivets. The Ministry said the prices of most of the products would be reduced or remain stationary; some would be increased. The net effect would be a saving to consumers of about £250,000 a year.

Stretford Council is to make its tenants pay for repairing defects in all gas and electrical appliances. This decision has been made because the town can no longer afford to accept the responsibility of repairs, and reverses the undertaking to meet the bills given last November. If the council maintained the appliances, it has been stated, the cost would be reflected in the rent and would mean careful tenants subsidising the careless.

A proposed increase in the price of gas, approved by the Belfast Gas Committee, is to be halted for a month or so, pending an inquiry into the ever-increasing price of coal. Northern Ireland has very little local coal supply, and has to depend on imported coal for manufacture of gas, electrical power, etc., for its mills, factories, shipyards and other forms of industry. In Belfast it has no water power and in the country mills and factories gas and electricity are supplanting water power, which is all to the good at the moment as rivers and lakes are greatly reduced by the prolonged drought.

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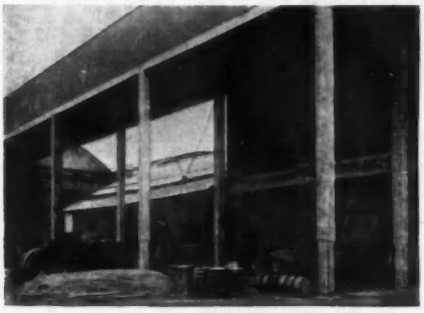

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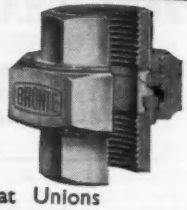

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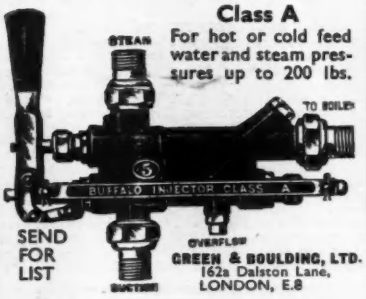

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APPOINTMENTS VACANT

The engagement of persons answering these advertisements must be made through a Local Office of the Ministry of Labour or a Scheduled Employment Agency if the applicant is a man aged 18-64 inclusive or a woman aged 18-59 inclusive unless he or she, or the employment, is excepted from the provisions of the Notification of Vacancies Order, 1952.

WALES GAS BOARD

GENERAL MANAGER—
CARDIFF UNDERTAKING

APPLICATIONS are invited for the position of GENERAL MANAGER of the Cardiff Undertaking.

Candidates for the appointment, which will carry a salary of £2,800 per annum, must have had wide administrative experience and possess appropriate qualifications, not necessarily of a technical nature.

Applications stating age, qualifications and experience, together with details of present and previous appointments and names of two referees, should be received by the undersigned not later than April 20, 1953.

C. B. MAWER,
Secretary to the Board.

Windsor Place,
Cardiff.

(*Classified advertisements continued on Supplement 4*)

APPOINTMENTS VACANT (ctd.)

NORTHERN GAS BOARD

WESTERN GROUP

ENGINEERING ASSISTANT (DIVISIONAL)

APPLICATIONS are invited for the post of ENGINEERING ASSISTANT (DIVISIONAL) for the Workington Division.

Applicants should be experienced in Manufacture and Distribution of gas. Mechanical experience will be an advantage.

The salary will be in accordance with Grade VII (£545-£625 per annum) of the National Salary Scales. A house at a reasonable rental is available.

The successful applicant may be required to pass a medical examination and will be subject to the provisions of the Board's Staff Pension Scheme.

Applications stating age, training, qualifications and experience together with names of two referees should reach the Group Chief Engineer, Gas Works, Workington, not later than April 15, 1953.

A. R. CROFT,
Group General Manager.

NORTHERN GAS BOARD

WESTERN GROUP

DISTRIBUTION FOREMAN

APPLICATIONS are invited for the post of DISTRIBUTION FOREMAN, Workington Unit. Applicants should hold the City and Guilds Certificate in Gas Fitting and must be experienced in installation work, modern gas appliances, estimating and mainlaying. It would be of advantage if qualified to drive a motor vehicle.

Rate of pay in accordance with Intermediate Grade VI, conditions 2 (£450-£495 per annum). A house at reasonable rental will be available.

Applications stating age, training, qualifications and experience together with *copies* of two recent Testimonials should reach the Group Chief Engineer, Gas Works, Workington, not later than April 15, 1953.

A. R. CROFT,
Group General Manager.

SCOTTISH GAS BOARD

FIFE GROUP

DUNFERMLINE DISTRICT

APPLICATIONS are invited for the following vacancies in the above District.

(1) TECHNICAL ASSISTANT

Candidates should state age, particulars of training, experience and qualifications.

The salary will be up to Provincial 'A' Grade VII, maximum of which is £625 with placing according to experience and qualifications.

(2) DRAUGHTSMAN/TECHNICAL ASSISTANT

Candidates should state age, technical qualifications, giving full details of previous Engineering and Gas Works experience and should be a good draughtsman.

The salary will be up to Provincial 'A' Grade V, maximum of which is £540 with placing according to experience and qualifications.

Both positions are in the Superannuation Class and will be subject to such Superannuation regulations as may in due course be introduced. Medical examination may be required.

Applications to be sent in to reach the undersigned not later than April 17, with *copies* of Testimonials or the names of two referees.

DAVID L. DICKSON,
Group Manager.

Gas Works,
Grange Road,
Dunfermline.
March 23, 1953.

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THE COMPANY has a vacancy for a Surveyor. Permanent position; progressive salary scale £540 to £785 with non-contributory pension. Candidates, age 26 to 34 years, who have served an apprenticeship with a reputable firm of gasholder manufacturers are invited to apply stating age and qualifications. Experience on outside erection of gasholder essential. Knowledge of both riveted and welded construction an advantage.

GAS ANALYST and a TRAINEE GAS ANALYST required by Kent Oil Refinery, Ltd., Isle-of-Grain, Kent Applicants for the former should be between 25-30 years of age, and should have had previous experience in this type of work, but specialised training will be given to the successful candidate. Applicants for the latter should be between 21-25 years of age and should have had some laboratory experience. Applicants for both these vacancies may be either male or female. Progressive salary, canteen facilities and pension scheme. Write stating age, experience to BOX G.J.166, *c/o* 191, Gresham House, E.C.2.

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INVITE APPLICATIONS from suitably qualified single men aged 25-35 for a post in Rio de Janeiro of TECHNICAL ASSISTANT in their Gas Works. Candidates should be experienced in gas manufacture and works maintenance with continuous and intermittent retorts, C.W.G., and ancillary plant. They should preferably hold the Higher Grade Certificate of The Institution of Gas Engineers in Gas Engineering (Manufacture). Salary will be in accordance with qualifications and experience taking into consideration cost of living; three year agreement subject to renewal with first class passage both ways; superannuation scheme. Written applications, which will be treated in strict confidence, should be made to Mr. W. P. Kellett, Manager, Engineering, Canadian-Brazilian Services, Limited, 148, Leadenhall Street, London, E.C.3. Applications should be received by May 1.

EASTERN GAS BOARD

WATFORD DIVISION

HOME SERVICE ADVISER

APPLICATIONS are invited for the position of HOME SERVICE ADVISER in the Hitchin Group covering Hitchin, Stevenage, Letchworth, Baldock and Biggleswade.

Candidates should have had at least two years training and possess a recognised diploma. Duties will include the giving of cookery and home laundry demonstrations, lecturing and visiting consumers in their own homes to advise on the correct use of gas appliances. Previous experience in a similar capacity in the Gas Industry would be a strong advantage.

The commencing salary, dependent on age, qualifications and experience, will be within the range £336-£472 per annum. The appointment is subject to a satisfactory medical examination and the successful applicant will be required to join the Board's pension scheme.

Applications giving age and full particulars of training and experience, should be sent to the General Manager, Eastern Gas Board (Watford Division), Radiant House, Clarendon Road, Watford, Herts., by April 15.

PATENTS

KINGS PATENT AGENCY, LTD.
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SMALL single truckloads and larger quantities of good ROUGH BREEZE from any gasworks, large or small, in the United Kingdom required by merchants paying own railway tolls. Cash price and particulars to No. 9378, *Gas Journal*, 11, Bolt Court, Fleet Street, London, E.C.4.

A SOUND INVESTMENT

THESE DAYS, a sound investment is something to write home about. What we write of here is not a new discovery, for it has long been at the disposal of industry. The point is that only the alert are using it to their full advantage. We refer to the help afforded to administration by a FULL PHOTOGRAPHIC RECORD of constructional jobs from foundation to completed building, from rough casting to finished product. Nothing escapes the eye of the camera. No other recorder covers such a wide field. A progressive file of photographs taken at regular, specified intervals, is an ever-present aid to the busy executive. It can be referred to at once in case of any point which may arise during the construction of plant or the making of a product. It shows progress at a glance unmistakably and eliminates the cause of wrangling and argument.

Walter King Photographs are specially staffed and equipped for this type of work and are prepared to tour the Midlands, Southern Counties, and Home Counties.

Details of this photographic service on request to Walter King, Ltd., 11, Bolt Court, Fleet Street, London, E.C.4.

The
LIMIT OF EFFICIENCY CAN BE REACHED
by the use of
LUX
GAS PURIFYING MATERIAL

Sole Importers:
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ALBION WEST BROMWICH

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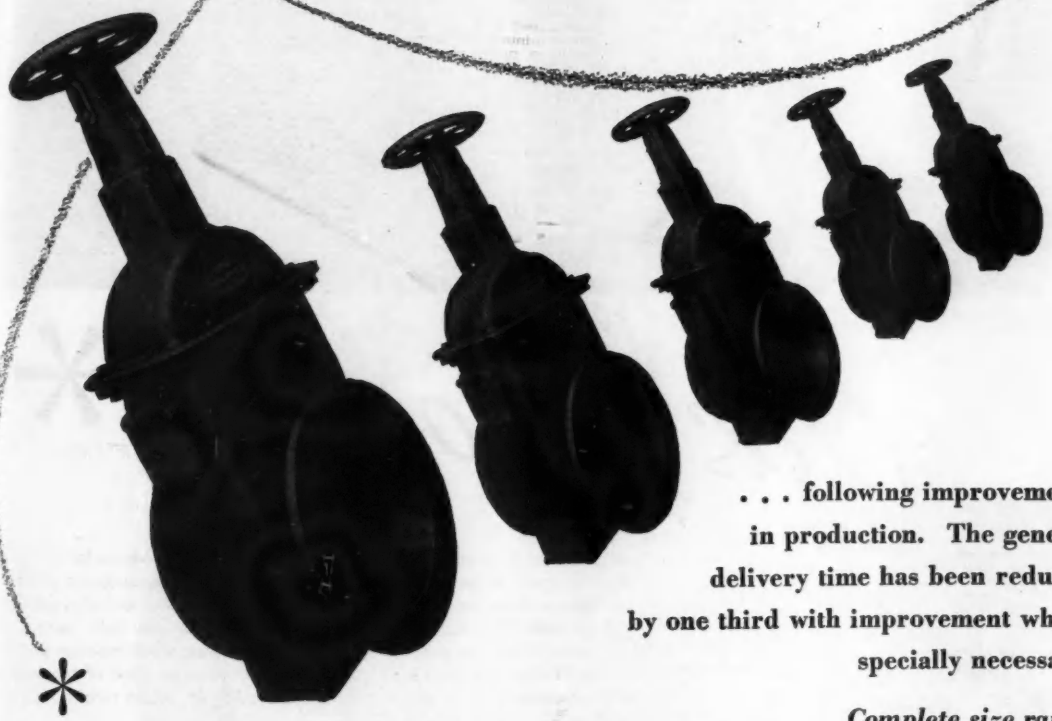
Delivery is better now

Delivery for Standard Vertical Type 24" bore now reduced to one month.



. . . following improvements in production. The general delivery time has been reduced by one third with improvement where specially necessary.

Complete size range available 3" to 48" bore

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FOUNDED 1850 HOLMES HUDDERSFIELD

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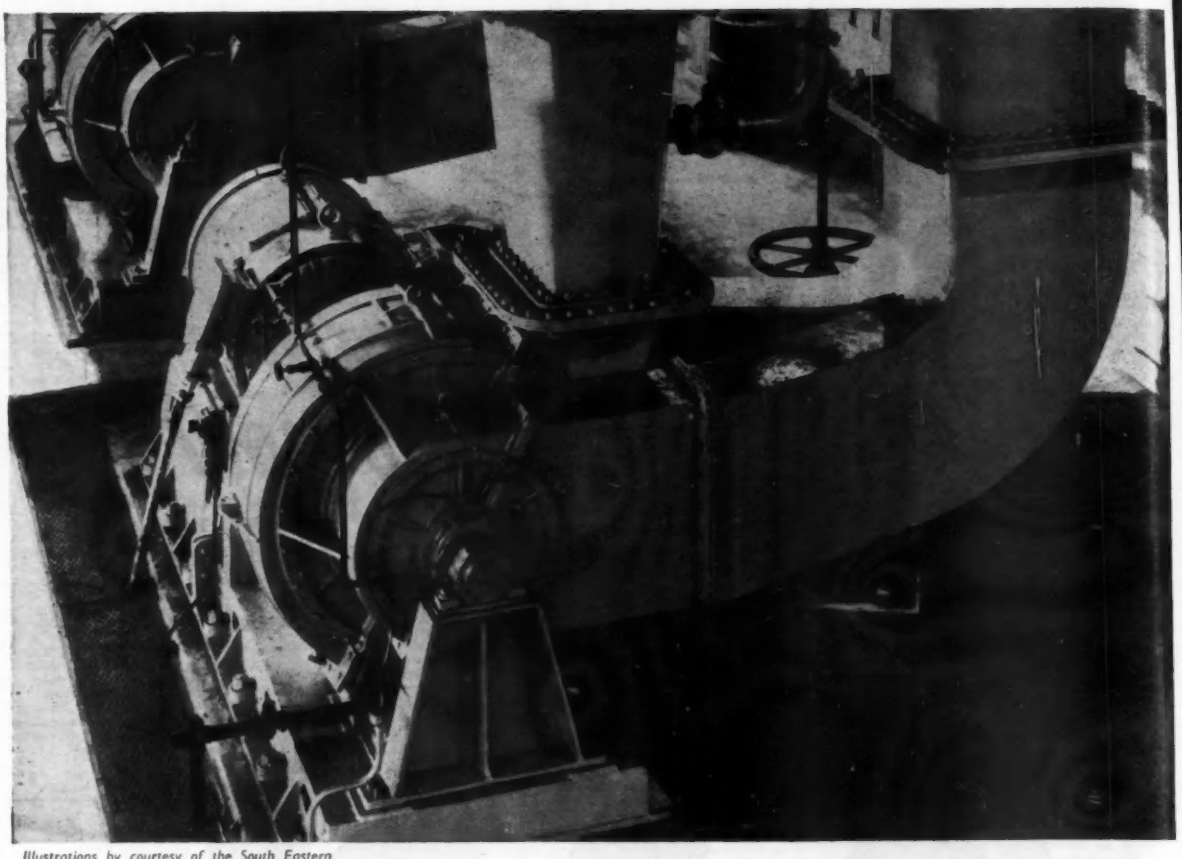

Illustrations by courtesy of the South Eastern Gas Board and Messrs. Humphreys & Glasgow Ltd.

Gas Boosting *

Part of an installation at the East Greenwich Gas Works for the supply of South London's gas are the "TORNADO" gas boosters illustrated above. Each is capable of shifting over a million cubic feet of producer gas an hour, and each was supplied with cast iron gas tight casings with detachable segments for easy servicing, stainless steel impeller and shaft, self aligning roller bearings and flexible couplings. One of the boosters was arranged for motor drive and the other for steam turbine.

*

LARGE ILLUSTRATION: *42" type 9 double width double inlet gas boosters.*

DUTY: 1,095,000 cu. ft. per hour producer gas at 104°F. saturated, giving 28" w.g. differential over inlet and outlet connections taking 138 H.P.

SMALL ILLUSTRATION: *40" type 15 air blowers.*

DUTY:	*Closed outlet*	*Delivery*
Air quantity	*nil*	*12830 c.f.m.*
Speed r.p.m.	*1480*	*1475*
Static pressure	*15.8" w.g.*	*13" w.g.*
Power absorbed	*13 B.H.P.*	*39 B.H.P.*

FAN ENGINEERING AND INDUSTRIAL GAS EQUIPMENT

We are manufacturing gas boosters which cover a range of from 5,000 to 1,500,000 cubic feet per hour, and if you are concerned with the movement of air or gas, ask us to send you Publication No. 5/7, a survey of the standard range of "TORNADO" high pressure blowing and exhausting fans.

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MILL MEAD ROAD, TOTTENHAM, LONDON, N.17

'Phone: Tottenham 4522 (twelve lines) 'Grams: "Keithblac, Norphone, London."

434/18/GJ

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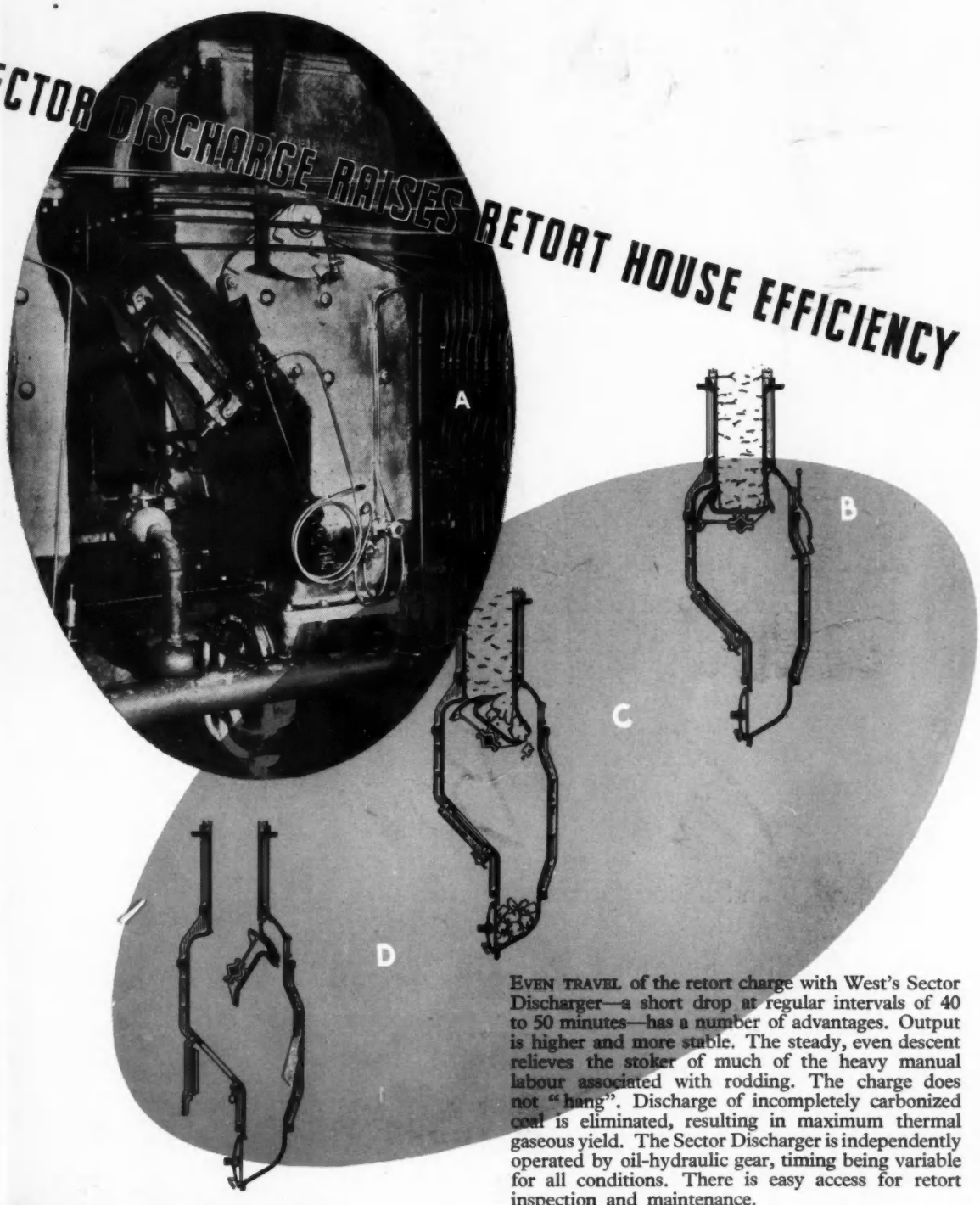
SECTOR DISCHARGE RAISES RETORT HOUSE EFFICIENCY



EVEN TRAVEL of the retort charge with West's Sector Discharger—a short drop at regular intervals of 40 to 50 minutes—has a number of advantages. Output is higher and more stable. The steady, even descent relieves the stoker of much of the heavy manual labour associated with rodding. The charge does not "hang". Discharge of incompletely carbonized coal is eliminated, resulting in maximum thermal gaseous yield. The Sector Discharger is independently operated by oil-hydraulic gear, timing being variable for all conditions. There is easy access for retort inspection and maintenance.

Illustrations: A. Exterior view showing oil-hydraulic drive. B. Discharger at rest. C. Operating. D. Access position for inspection of empty retort.

West's Gas
IMPROVEMENT CO. LTD.

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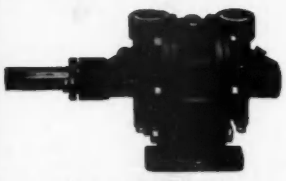
Pulsometer

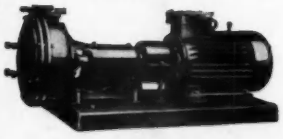
PUMPS AND FILTERS

Filtration Plant in Gasworks

The illustrations show centrifugal pumps for light and heavy oil and liquor duties, stoneware and special metal pumps for handling acids and alkalis, pumps for circulating and washer duties, for clean water and fire services and for liquids containing abrasives.

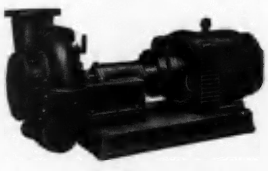


Rotary pump for Oil transfer duties.

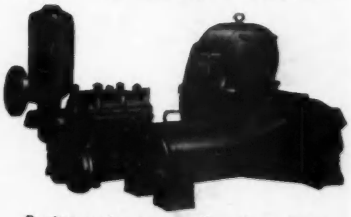


Stoneware pump for Corrosive and chemicals.

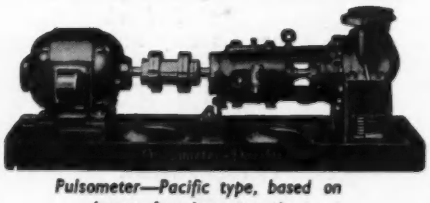
" HS " Type—for water services. All heads up to 500 feet.



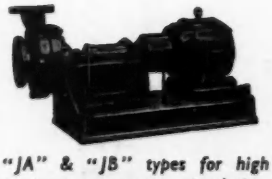
Slurry pump for coal washing and abrasive liquids.



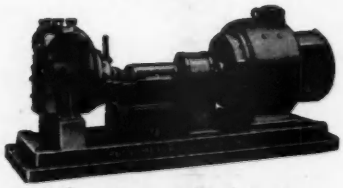
Reciprocating pump of modern design for Gas Works.



Pulsometer—Pacific type, based on latest American practice.



"JA" & "JB" types for high temperature water circulation.



Self priming centrifugal pumps.

PULSOMETER ENGINEERING Co. Ltd., Nine Elms Ironworks, READING